BUSINESS WEEK

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Raising Money
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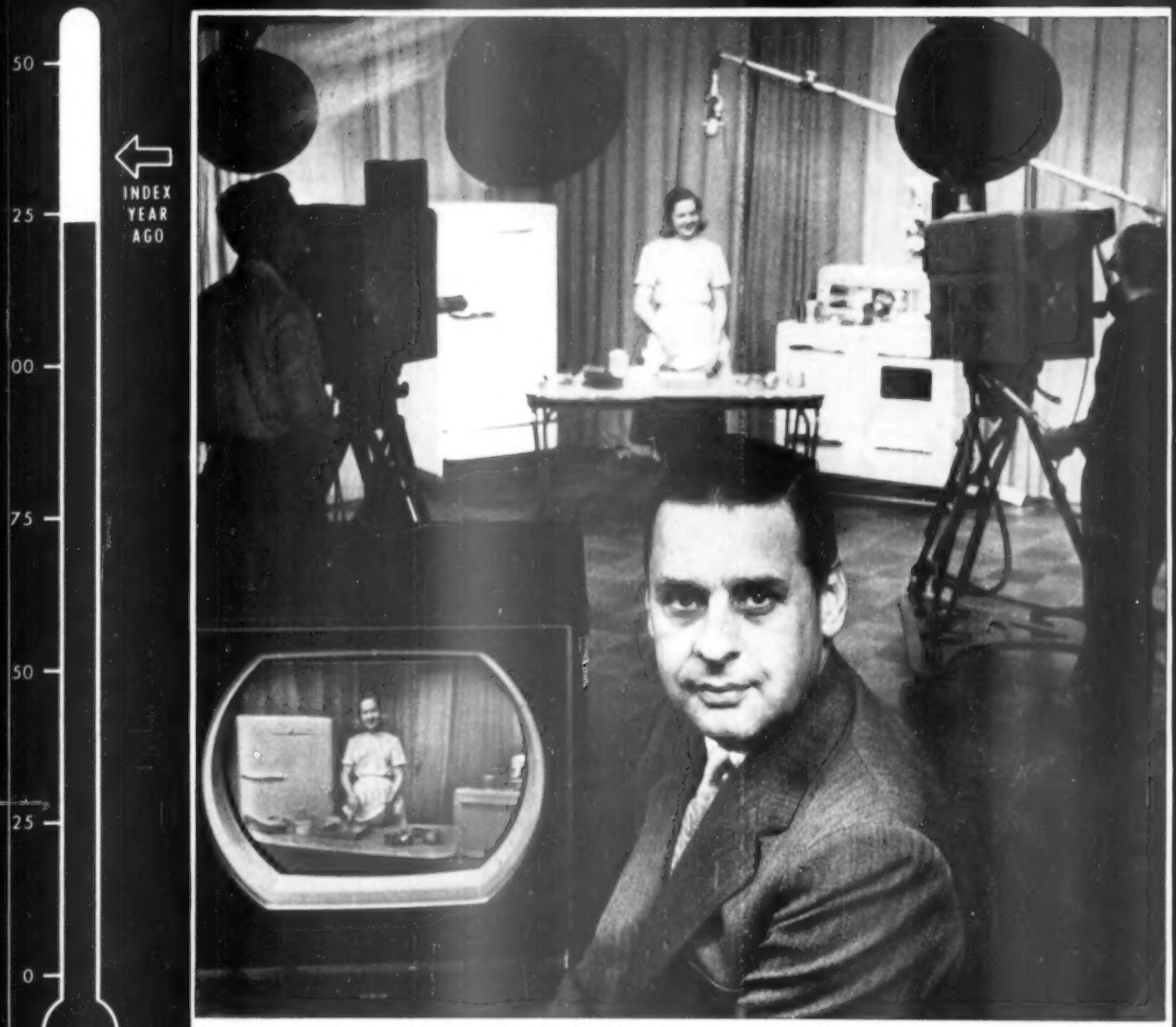

Bitner of WOOD-TV: How local can you afford to stay? (page 44)

A McGRAW-HILL PUBLICATION

FEB. 20, 1954

Competitive edge

The company with a good system operates efficiently with least waste and has a real edge over competition. One of our customers handled bigger volume with the same staff, comfortably, using a specially designed system based on Moore Register forms. The Moore man helped engineer the improvements and had the advantage of wide Moore facilities and range of forms. Perhaps the Moore man can help you?

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BUSINESS FORMS
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Look up the Moore man in the Classified or write us at Niagara Falls, N. Y., Denton, Tex., or Emeryville, Calif. Over 300 offices and factories across U. S. and Canada.

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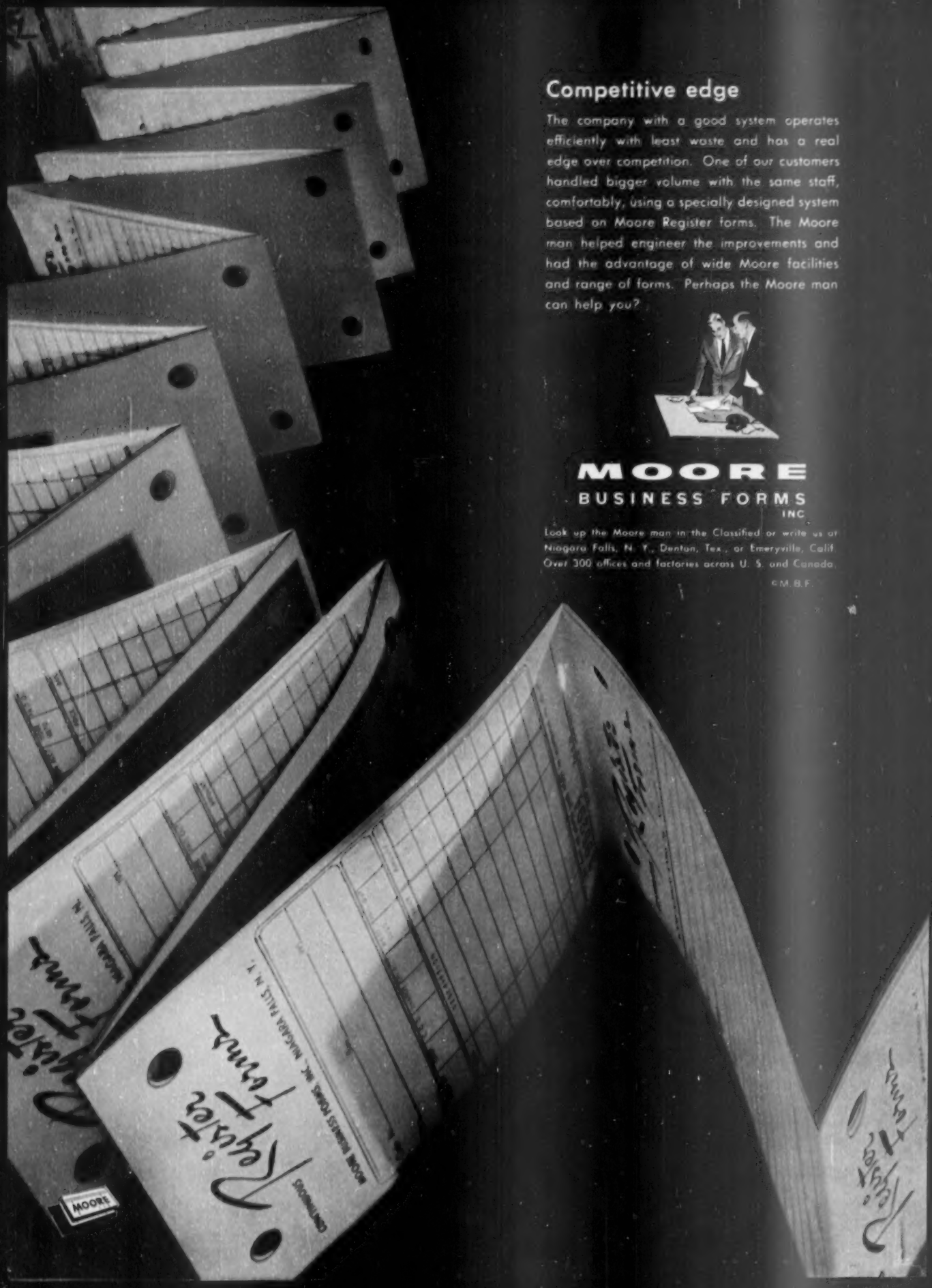

RESEARCH KEEPS **B.F.Goodrich** FIRST IN RUBBER

2 million tons of rock take to the air

A typical example of B. F. Goodrich improvement in rubber

IN that plant they're making concrete for a California dam that will stand as high as a 25-story building. But the stone and sand, used to make concrete, is stored across a river, a half mile away.

To get it across, a series of conveyor belts was designed that work like a bucket brigade. Rock from one belt is dumped onto the next, and then the next, and so on until it reaches the plant. But engineers knew no ordinary belt could make the sharp 139-foot climb to the top of the tower. To be strong enough for that, a regular belt would have to be so thick and stiff the rock would spill off.

Then a B. F. Goodrich man told them his company had developed the *cord* belt for jobs like this. Unlike the usual conveyor belt, made of rubber and layers of fabric, the B. F. Goodrich belt is made with separate cords, each surrounded by rubber, running the length of the belt. The cords make the belt stronger without making it stiff, so it can run up steep angles and still keep its U-shape to prevent spilling.

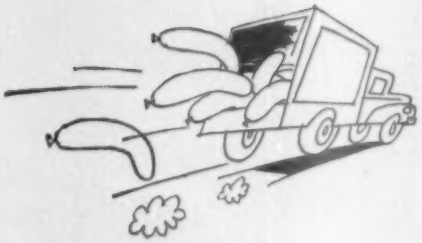
That's the B. F. Goodrich belt in the picture. It's working out so well, it is expected to carry the two million tons needed here, and then be moved to another construction job for many more years of useful service.

The cord belt is typical of B. F. Goodrich research which is constantly at work improving all kinds of belting, hose and other rubber products and finding new ways to use them better. Don't decide any rubber product you may buy is the best to be had without first finding out from your BFG distributor what B. F. Goodrich research may have done recently to improve it. Or write *The B. F. Goodrich Company, Dept. M-187, Akron 18, Ohio.*

B.F.Goodrich
INDUSTRIAL PRODUCTS DIVISION

How to protect your business against both

plain and fancy stealing



A bologna salesman down in Texas figured out a pretty plain way to defraud his company.

He drove off with a truckload of the sausage, sold it at half price and pocketed the money—$1,117.37.

The editors of a group of pulp magazines in New York were quite a lot fancier.

They bought non-existent, detective-story manuscripts to the tune of $96,000 over a period of three years—and cashed the checks themselves.

As these two cases show, when employees turn dishonest, there's practically no limit to the ways they'll find to steal. And when they do pick a way—whether it's tapping the till, juggling the books or carting off merchandise—they usually spend the stolen funds long before they're caught.

Travelers Blanket Fidelity insurance, covering all your employees, protects you fully against the consequences of criminal ingenuity at work in your business. You won't have to worry about dishonest acts OR recovering losses resulting from them.

A new booklet, *How Well Do You Know Your Employees?* just published by The Travelers, gives full details of Travelers Blanket Fidelity insurance and tells how to classify your employees for this important coverage. For your free copy, fill out the coupon below, attach to your letterhead and mail.

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R. W.—2-20

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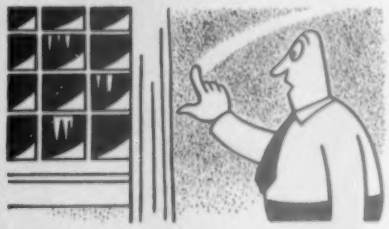
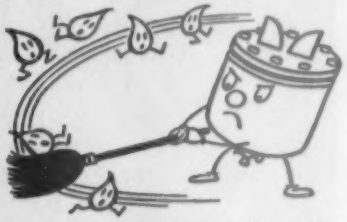
AIR-MAZING FACTS

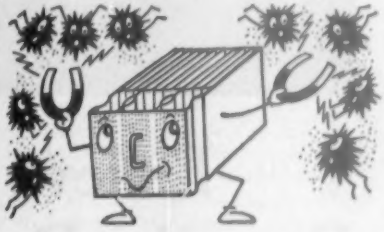
BY O. SOGLOW



COLD WALLS CATCH DUST! Walls get streaked with dust and dirt if they're only one degree colder than the air in a room. Reason: warmer room air causes dust particles to settle. Experts report cold nail heads and plaster over metal laths are the best dust-catchers.



MOPPING UP OPERATION! Troublesome water never gets through the air lines when compressors are equipped with Air-Maze pipeline filters. A special whirling action traps the water and a cleanable, all-metal filter unit stops dirt and rust, too.



MAGNETIC PERSONALITY! More than 90% of all air-borne dust and pollen, even smoke particles, are drawn right out of the air by Electromaze electronic air filters. Used from coast to coast wherever super-clean air is desirable, Electromaze filters are more flexible in size, quicker to install and easier to clean.

WHETHER YOU BUILD OR USE engines, compressors, air-conditioning and ventilating equipment, *or any device using air or liquids* —the chances are there is an Air-Maze filter *engineered* to serve you better. Representatives in all principal cities. For condensed product catalog, write Air-Maze Corporation, Department C, 25000 Miles Road, Cleveland 28, Ohio.

AIR-MAZE
The Filter Engineers

AIR FILTERS
SILENCERS
SPARK ARRESTERS
LIQUID FILTERS
OIL SEPARATORS
GREASE FILTERS

Believe it or not . . . here's where Bendix Power Steering for Trucks is valued most!

Truck drivers we've talked to have an entirely different slant on Bendix Power Steering.

They admit the dramatic advantages—preventing loss of control from front-wheel blowouts and soft shoulders, and making parking and turning easy.

But believe it or not they like it most on the straightaway and here's why:

They say most of the time they are steering over long, straight stretches of road. Without power steering there is tension from playing the wheel constantly to maintain control, correcting and counter-correcting because of road and load conditions.

With Bendix Power Steering they simply "point" the vehicle down the road. There is no tension. They maintain perfect control with minimum effort, and control means safety. Without a good safety record you can't have a good profit record in the trucking business.

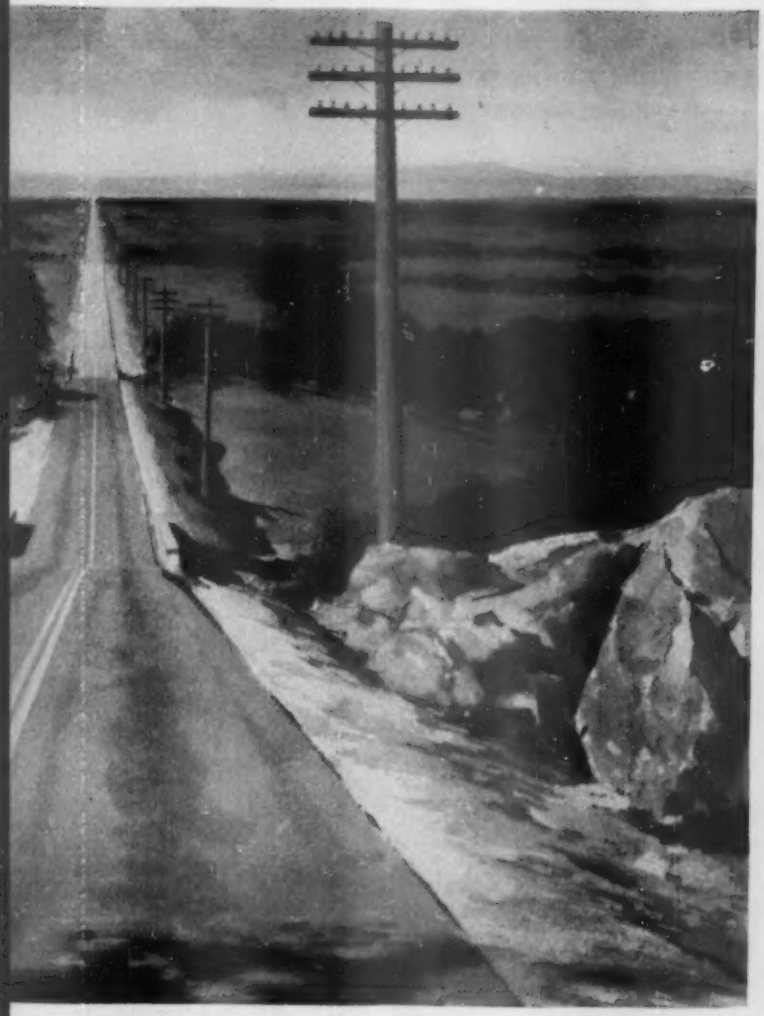
Power Braking, Too!

Bendix, pioneer and leading manufacturer of Power Braking for trucks and cars, has produced over 5 million units. For perfect control, you can't beat the combination of Bendix Power Braking and Bendix Power Steering.

What Else Does Bendix Make?

Nearly a thousand other quality products.

Some go directly to the consumer—television and new-lined brake shoes for cars, for example. Others



include radar, guided missiles, sonar, telemetering and essential automotive and aviation products. Some are complex, relatively small-quantity devices; others represent big-volume, low-cost production. Industries served range from Atomic Energy to Bicycle, for which we make a very fine coaster brake.

Bendix' eggs are in many baskets; the partial list of products and divisions at the right gives you an idea how many. It's an odds-on bet that Bendix Aviation Corporation can help improve your business or operation, maybe with newly developed processes or technical advice on chronic problems now bottlenecking your production.

Look into Bendix further. Have your secretary follow through on the following suggestion:

FIND OUT HOW BENDIX CAN HELP YOUR BUSINESS

The complete story of Bendix is best told and illustrated in an interesting new digest called "Bendix and Your Business." You are almost certain to find in its pages at least one idea of how Bendix can help improve some part of your own business. Please make requests for this 40-page booklet on your company letterhead to:

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BENDIX RADIO, TOWSON, MD.
radar; auto, railroad, mobile and aviation radio; television.

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Stromberg carburetors, electric fuel pumps, starter drives, coaster brakes.*

MARSHALL-ECLIPSE, TROY, N. Y.
brake blocks, brake lining, synthetic resins.

ECLIPSE-PIONEER, TETERBORO, N. J.
aviation instruments and components; foundry.

BENDIX FRIEZ, TOWSON, MD.
meteorological instruments; precision instruments and recorders.

RED BANK, EATONTOWN, N. J.
electronic tubes; dynamotors, inverters.

ZENITH* CARBURETOR, DETROIT, MICH.
automotive, marine and small engine carburetors.

BENDIX-SKINNER, DETROIT, MICH.
micronic filters.

PACIFIC, NORTH HOLLYWOOD, CALIF.
telemetering equipment; hydraulic and electric actuators; depth recorders; boat steerers.

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automatic viscosity regulators, nuclear products.

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digital computers.

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YOU CAN BE SURE...IF IT'S Westinghouse

Miami . . . City of Magic Growth

. . . and Rome helps her power grow!

Population up 246% . . . that's the phenomenal 20-year story of Greater Miami! Even more incredible is this "Tourist" city's increases in business and industry since World War II.

Miami's manufacturing firms have doubled since 1947, expanding from 534 to 1250. In Miami Beach, center of Florida's fabulous tourist industry, more hotels have been built since the war than in any other city in the nation.

Florida Power & Light Company, headquartered in Miami, is currently engaged in a ten-year program costing $332,000,000. Already since war's end, ten new power generating units have been built. System capability has been upped 212% since V-J Day, more than double the national average.

Electric energy, lifeblood to expanding population, homes, and manufacturing, must be conveyed by high-quality cable and wire, engineered to hundreds of specific applications. That's why you'll find so many *Rome Cable* products in Florida and throughout the country. Yes, Rome has a big role in Magic Miami's expansion.

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RoMarine-RoPrene® all-purpose cable combines moisture and heat resistant RoMarine insulation with the RoPrene (Neoprene) sheath. This cable can be installed direct in earth or aerially. Underwriters' approved as Type USE.

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READERS REPORT

When Loyalty Counts

Dear Sir:

I enjoyed, although I can hardly say I agreed with, the article entitled Loyalty Doesn't Count Much [BW—Jan. 30'54,p50].

While there is plenty of room for doubting the representativeness of a sample of 272 [electric ranges], there is even more room for taking issue with the breakdown of responses. . . .

You will note that "reputation of company" and "recommendations" are listed separately. It seems to me that recommendations are the backbone of the reputation of a company. If you add the two factors together you would then have to conclude that Loyalty Does Count Much.

Incidentally, we recently purchased a refrigerator, a range, and an automatic washer, and believe me the reputation of the company was plenty important in our choice.

RAYMOND E. PRITCHARD
CHICAGO, ILL.

Heckling Is Healthy

Dear Sir:

As a municipal official and small stockholder, I was most intrigued with your article titled A Gag on Annual Heckling which appeared on page 82 of the Jan. 9 issue.

Frankly, we who serve in public office are continuously under barrages similar to those described in the article, except that ours consist of individual taxpayers continuously heckling the city government.

I, personally, feel that possibly this is one of the reasons that democracy in government, particularly municipal government, exists today . . . and rather than eliminating these activities, they might be encouraged. After all, some thought might be given to the fact that if government people can "grin and bear it," our usually capable business executives should at least be able to do the same. . . .

JEROME D. FRANKLIN
MICHIGAN

Transistor Output

Dear Sir:

As a subscriber . . . to BUSINESS WEEK *as well as an employee of the Raytheon Manufacturing Co.'s Receiving Tube Division . . . the writer has been most interested in the articles which you have run occasionally during the past months on transistors. The latest . . . [BW—Jan.30'54,p58] con-*

AIR POWER REPLACES TEDIOUS HAND ASSEMBLY

Only an open end wrench will reach in to turn down the flared nuts which attach copper tubing. This has always been a tedious, time-consuming, knuckle-bruising job . . . until Keller developed the pneumatic ratchet wrench—the only power tool ever designed that has proven successful for this work.

The open end ratchet wrench slips over both nut and tubing . . . the operator presses a lever . . . and zip, the nut is run down instantly.

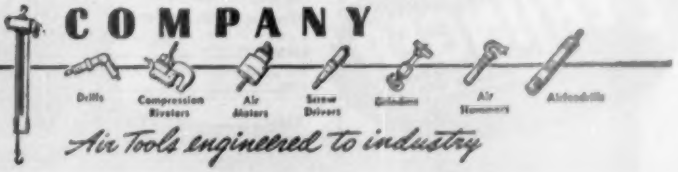
Above, the Keller wrench is shown in use on an automobile assembly line, attaching coolant tubes to the automatic transmission. The same tool is widely used by refrigerator manufacturers and others who have piping to assemble.

Keller places particular emphasis on developing those tools which will serve the special needs of industry . . . and then supplies them through sales representatives whose knowledge of air tool application enables them to suggest many short cuts and timesaving innovations.

KELLER TOOL COMPANY

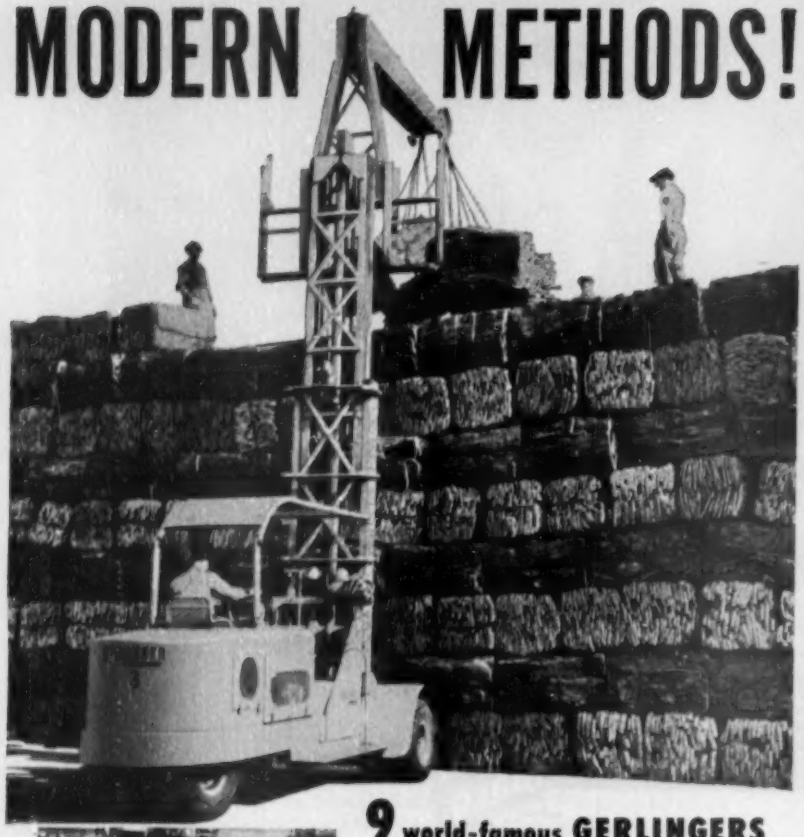
1301 FULTON STREET

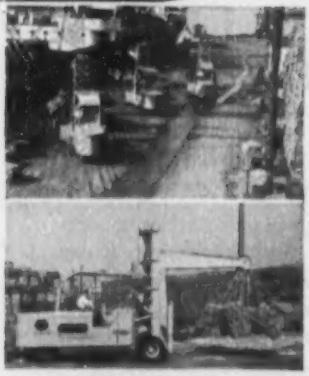
GRAND HAVEN, MICHIGAN



Air Tools engineered to industry

Even Cork Can Be a HEAVY Expense
...if not handled by
MODERN METHODS!





9 world-famous GERLINGERS cut costs and manhours for world-famous cork company*

Since standardizing on a fleet of nine Gerlinger Fork Lift Trucks, this well-known firm has profited by high-speed transporting and stacking of cork received by ship at its Gloucester City, New Jersey, wharf. The Gerlingers...with crane attachments to pick up 10 bales each at a time ...transport capacity loads from dock to storage area. Here...by special Gerlinger boom attachments...bales are hoisted up to 20 tiers high, safely and swiftly, giving entire operation production-line efficiency.

There's a job-proved Gerlinger for your particular material handling problem ... for any product that must be lifted, moved, stacked or stored. Send coupon for details. No obligation.

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Hoisting heights to 16'2"

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times to overlook certain facts which I wish to call to your attention.

. . . One of the three subheadings states "Next step—transistor mass production—will give electronic tubes a run for their money." This completely ignores the fact that transistors have been in mass production here . . . for over one year. . . . Hundreds of thousands of Raytheon junction transistors are now in actual commercial use. . . .

Because . . . your articles on transistors have given the impression that they are not yet available in quantity, the writer feels that you are not acquainted with these facts. . . .

C. W. MARTEL
RAYTHEON MANUFACTURING CO.
RECEIVING TUBE DIVISION
NEWTON, MASS.

• We didn't mean to leave the impression that transistors aren't in mass production already, especially at a company level such as yours. Lately, we have mentioned new transistors that are available over the counter. The Jan. 30 story also has a rough estimate of the industry's annual capacity. The point we did want to make clear is that transistor output, today, is only a fraction of that for tubes.

Cheaper Records Soon?

Dear Sir:

Your story about the new injection molding process of making phonograph records [BW—Jan.30'54,p63] suggests that manufacturing costs may be cut. But it says nothing about what will happen to prices of records. Can we hope for a chance to buy our LP's cheaper in the near future?

NAME WITHHELD

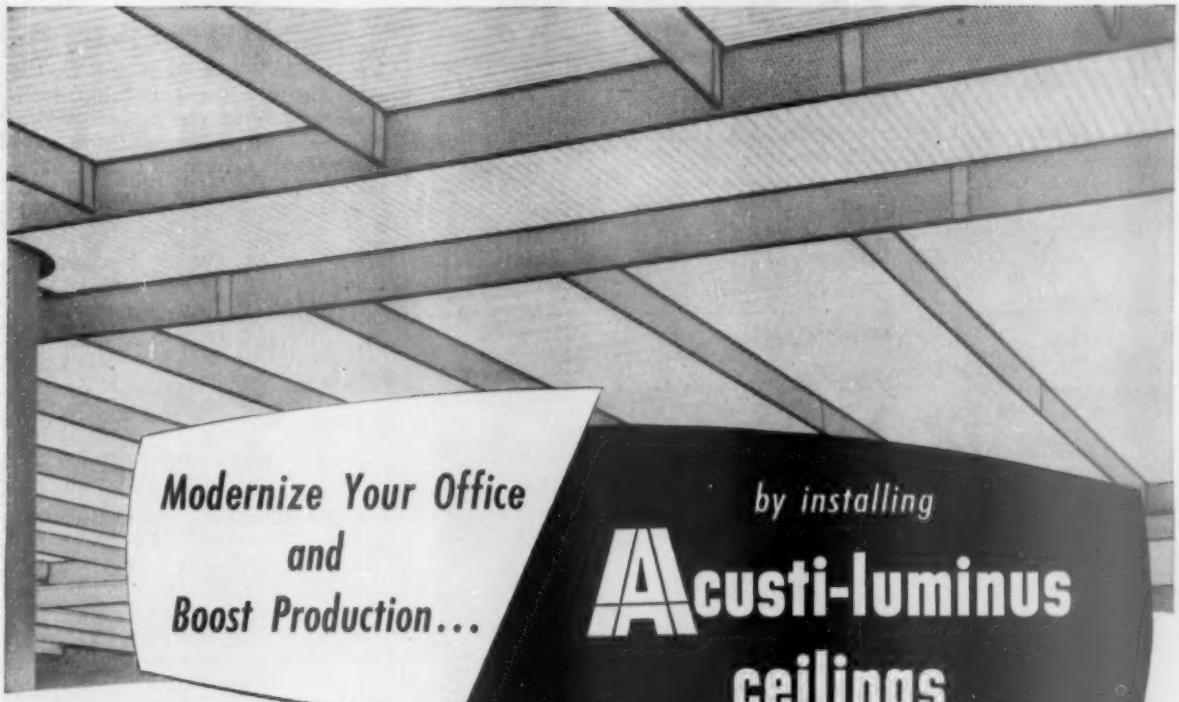
No Connection

Dear Sir:

. . . On page 98 of the Jan. 23 issue of BUSINESS WEEK, *speaking of the truck tax muddle in Ohio, is the statement: "They base the adoption of the tax on recommendations of Governor Lausche and a highway study prepared by Dr. Herbert Simpson of Northwestern University for the Ohio Program Commission."*

The fact is that this axle-mile tax has no connection whatever with my study or my recommendations. I recommended a straight increase in truck license taxes, which would have increased the revenue from this source by about $19-million. They have picked up my figure of $19-million somewhere.

My recommendation had no element of mileage records and reports to be made by truck operators. I clearly expressed the opinion that no self-



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by installing

Acusti-luminus ceilings

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OVER 2800 INSTALLATIONS IN 36 STATES!

Below are a few of the many installations in factories, offices, drafting rooms, critical work areas, stores, banks, schools, libraries, utilities, and public buildings:

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American Cyanamid Co.
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Union Carbide and Carbon Corp.
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Western Electric Co., Inc.
Westinghouse Electric Corp.

Here is a ceiling that *works* for you!

Really a production tool—an Acusti-Luminus Ceiling helps employees to get more work done—in less time—with fewer errors!

It's superior to daylight — because the light is evenly diffused by lightweight, corrugated unbreakable Lumi-Plastic. There is *no shadow—no glare!* The result is a source of low brightness—of any intensity.

Also reduces noise—Sound-proofing is provided through noise-absorbing Acusti-Louvers which may be hung at intervals below the Lumi-Plastic.

Increases employee efficiency—In such a quiet "luminous environment" employees see better, feel better, and do a better job. Case studies reveal that employees working under Acusti-Luminus Ceilings get fewer headaches from eyestrain, show less fatigue, take less time off, and have more enthusiasm for their work.

It's the newest trend in lighting—This solid "ceiling of light" gives clean, modern lines to old ceilings. Hides pipes, ducts, cracks, and other eyesores. Labelled by Underwriters' Laboratories for installation *under* existing sprinkler systems. So a growing number of business firms are using this multi-purpose ceiling for modernization—as well as for new construction.

First prize winner—Acusti-Luminus Ceilings won the first prize for office lighting in the 1953 National Lighting Competition for Electrical Contractors.

Costs less—Both initial cost and maintenance costs are less than for conventional ceilings with the same illumination and sound correction. Write for complete information.

HOW YOU CAN INSPECT AN ACTUAL INSTALLATION See for yourself what it's like to have illumination that is evenly diffused—without shadow or glare! Write us for the name of an Acusti-Luminus Ceiling installation near you.

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600 BRANCHES ACROSS CANADA...RESOURCES EXCEED $2,300,000,000

reported tax would work in Ohio. This is a modification of the present Oregon tax. But they have only half a dozen roads to get into and out of Oregon, and the thing can be policed in some shape there. Ohio is an entirely different proposition.

I pointed out specifically in my report the reciprocity mess that would result from the adoption of such a tax . . . to which the article in BUSINESS WEEK *refers.*

HERBERT D. SIMPSON
COMMISSION ON INTERGOVERNMENTAL RELATIONS
WASHINGTON, D. C.

Three-Way Congratulations

Dear Sir:

Congratulations to you for an earned honor.

Congratulations to the BUSINESS WEEK *ownership for giving talent full sway.*

Congratulations to Long Island University for recognizing the virtue of simplicity in writing. . . .

J. MONTGOMERY CURTIS
AMERICAN PRESS INSTITUTE
COLUMBIA UNIVERSITY
NEW YORK, N. Y.

• BUSINESS WEEK last week was awarded one of the nine George Polk Memorial Awards by Long Island University, for "its consistently outstanding news articles emphasizing the transition of business reporting from obscure and narrow writing to popular, broad appeal."

Wrong Slice of Pie

Dear Sir:

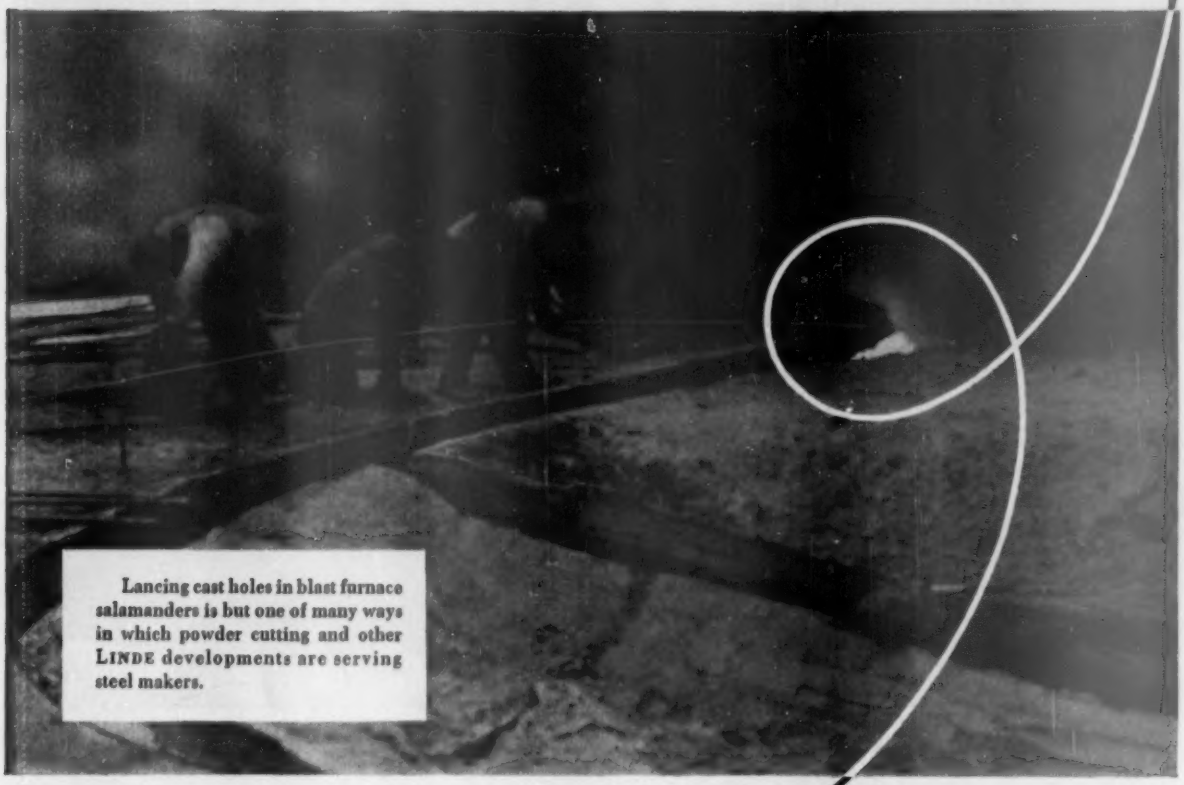
On page 42 of the Feb. 13 issue you have a table on "Here's how national media cut up the pie." In this table you say you are giving space figures for industrial, trade, class, and export papers; and linage figures for newspapers. Yet the figures themselves are in dollars. What did you do—convert space and linage into dollars by using an average rate?

G. BRYANT
WASHINGTON, D. C.

• No. Our chartmaker got so accustomed to putting dollar signs before the other media figures that he automatically put them before the space and linage figures, too. The figures are true space and linage—not dollars at all.

Letters should be addressed to Readers Report Editor, BUSINESS WEEK, 330 West 42nd Street, New York 36, N. Y.

How Oxygen ...and LINDE SERVICE*
GOT A STEEL MILL "OUT OF THE WOODS"



Lancing cast holes in blast furnace salamanders is but one of many ways in which powder cutting and other LINDE developments are serving steel makers.

Costly downtime was piling up in a large steel mill. Usual methods of tapping a blast furnace salamander wouldn't work. It looked like the furnace would be down for some time.

Then LINDE SERVICE was called in. Powder cutting for lancing a cast hole in the furnace was recommended. LINDE-trained operators began powder cutting at 1 a.m. Five hours later, the 225-ton salamander was out of the furnace.

"Thank you for your help during our recent blast furnace difficulties," a mill official wrote. "We are now out of the woods, thanks to the help of your operators and the powder lance."

Today, the LINDE powder lance is standard equipment in that mill.

***LINDE SERVICE** is the unique combination of research, engineering, and more than 40 years of accumulated know-how that is helping LINDE customers save money and improve production in their uses of oxygen and oxy-acetylene processes.

If your company uses oxygen, LINDE SERVICE can mean dollar savings to you. Let us tell you more about it.

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(Advertisement)

New Willys passenger cars coming off the line in Toledo

Suppose an auto maker had to ask the government's permission to raise or lower the price of his cars...

Over the past 50 years, the automobile industry has grown to mammoth size—giving employment, directly and indirectly, to millions of people.

Its accomplishments have been the accomplishments of private management, free to make decisions in the best interests of customers, employees and stockholders—and to put those decisions into effect immediately.

For example, if a competitive situation makes advisable a reduction in price, an automobile manufacturer can announce that reduction over-night. Conversely, should material costs rise or a general wage increase be granted, added operating expense can be offset by an immediate price rise.

Most businesses are able to operate with this freedom—with management assuming full responsibility for its decisions.

A notable exception is the railroad industry, where a decision to reduce or increase rates must be submitted to a regulatory commission. The railroads agree that reasonable regulation of railroad prices is in the public interest but, in recent years, decisions on general freight rate increases at the national level have taken an average of 350 days—a time lag that has cost the railroads more than a billion dollars in lost revenues.

The railroads perform an important service for American business and industry. To do their job, they need and ask the basic freedom other businesses enjoy in our competitive economy. They ask that regulations be modernized to fit present day conditions.

The railroads operating in the highly populated and industrial East are especially burdened by the restrictions placed upon them by outmoded and unrealistic regulations....Eastern Railroad Presidents Conference, 143 Liberty Street, New York 6, New York.

60,000* daily passenger rides

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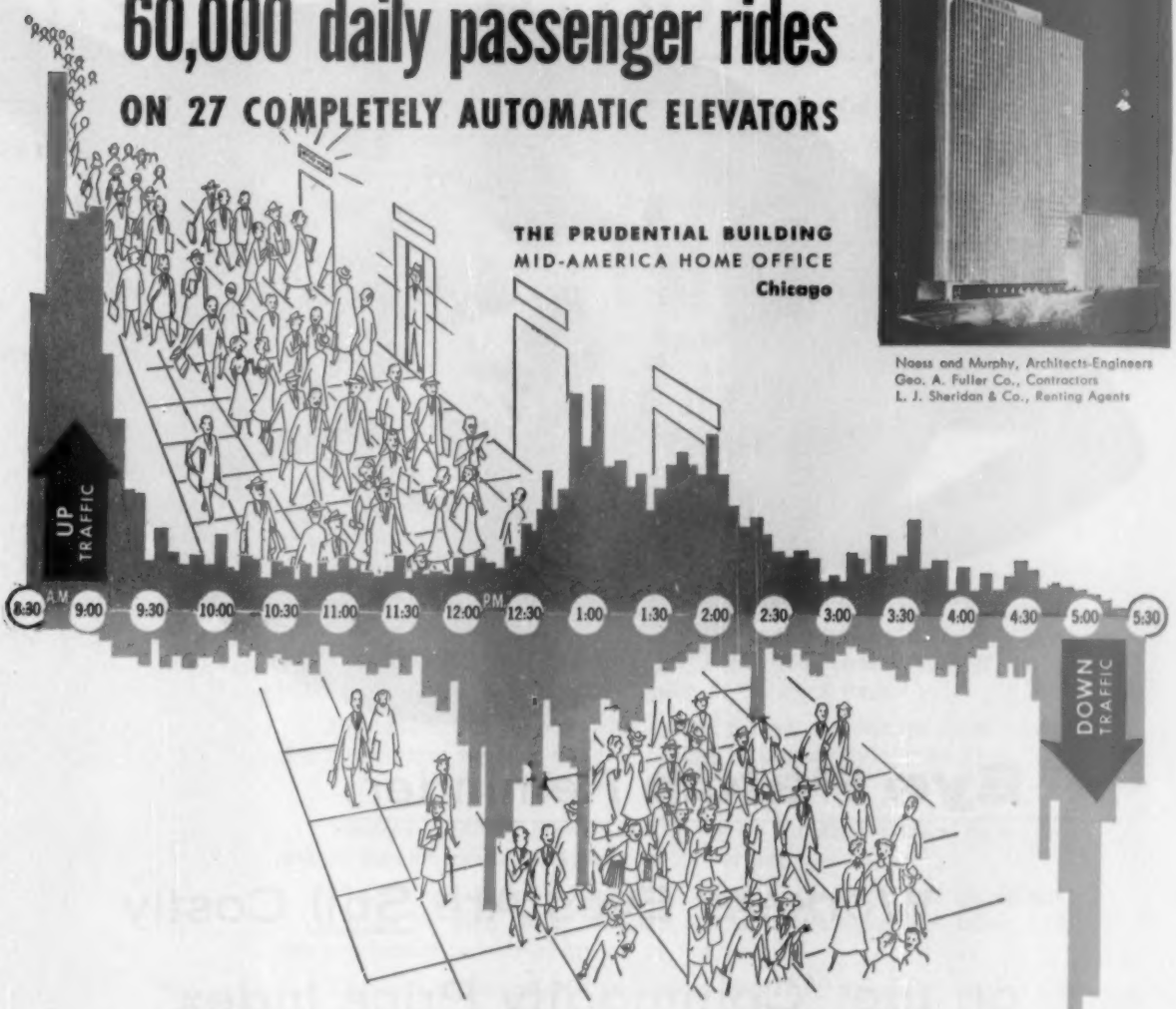

The Prudential Building traffic is both single purpose and diversified and its density will vary, depending upon the time of day, as graphed above.

The 41-story Prudential Building, with its one million square feet of rentable area, will be served by 27 completely automatic elevators, arranged in 4 banks, and operated at speeds up to 1,400 feet a minute.

Prudential will occupy the lower floors for its Mid-America Home Office. The upper floors will be leased to some of the most important companies in the business world.

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Eye Patch Reminder:

Workers' Eyes Are Still Costly on the "Commodity Price Index" This Year!

The commodity price index may show a declining curve but the cost of industrial eye accidents remains as high as ever. The *hidden* costs* may not appear on the books but the direct costs alone in compensation, higher insurance rates and medical expense can make a high break-even point even higher. They justify *your action!*

Eye injuries cost more than $5.00 *per employed* worker, and more than 98% of the injuries are prevented when *exposed* workers wear safety goggles — at an average cost of $2.30. Where else in industry can you find an equipment investment that pays off as handsomely?

Ask an AO Safety Representative what other companies in and out of your industry have saved with an AO Program. Or write American Optical Company, 412 Vision Park, Southbridge, Massachusetts, for booklet, "Improved Industrial Vision." Do it today.

**Hidden costs include:* Lost man hours • Idle time of worker's machine • Lowered efficiency because of substitute workers (Green men don't have the skill) • Cost of increased rejects.

American Optical
SAFETY PRODUCTS DIVISION

AO SAFETY ZONE

Keep your workers in the Safety Zone with American Optical Safety Equipment.

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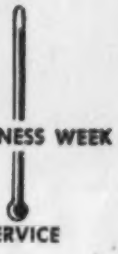
SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

BUSINESS OUTLOOK



This business decline has been unusual, so far, for its gentleness.

Measured by production, we've come down not quite 9% since last July. Use employment as a yardstick and we still have 60-million jobs (at the ebb season for jobs). **The decline has neither steepened nor snowballed.**

Strikingly, it has been accompanied by no over-all price weakness.

About the only bump so far has been a statistical one—this week's revision in the unemployment figures (page 29).

The new figures are bigger. They unquestionably are more representative. But they don't change the amount or degree of hardship one iota.

Stemming the business decline—before it gets rough—remains a problem. People seem confident, in and out of Washington, but precise reasons for this confidence are a little hard to isolate.

And, if you want to be pessimistic, facts are easy to produce.

Here's one: Factory payrolls now are running more than $5-billion a year less than they were last August. That's the product of lower employment in manufacturing and shortening of the work week.

Here is purchasing power lost out of pocket. It hits the mass market. It's much more tangible than the much-talked-of savings backlog.

—•—

Theories that soft goods were taking up the slack created by a recession in durable goods don't seem to be working out well.

The Federal Reserve Board's index of production, over all, is down 9.4% from its high. And, though output of durables has fallen 11%, the nondurable industries are off by nearly 9%.

Thus soft goods not only are failing to take up the slack; they've done almost as poorly as the much-discussed durables on the output side.

When it comes to providing jobs, nondurables show up a bit better.

Nevertheless, January employment in factories turning out soft goods was 272,000 less than a year earlier, the Bureau of Labor Statistics reports. Jobs in hard goods plants fell 771,000 in the same period.

Declines in soft-goods factories were concentrated in textiles and apparel. But there was a 10% drop in rubber, and even the year-to-year change in chemicals appeared behind a minus sign for the first time.

Drops were pretty much across the board in hard goods. However, the biggest was in primary metals output and in machinery.

When it comes to retail sales, soft goods have run behind year-earlier levels for the last four months (though not by much). Store sales of hard goods didn't fall behind until December—but when they did, there was no fooling. The gap was about 4% in December, and it widened to 7% in January.

—•—

Electric power output continues to give one of the brightest pictures of the country's general activity.

The latest week's output, for example, was 60% above the 1947-49

average. However, the margin of gain over a year ago now is barely 7% compared with 8% to 10% a month ago.

And **the heavily industrialized Great Lakes area has fallen behind 1953.**

—•—

Steel seems to have shaken down to operations at about 75% of capacity—which, if not comfortable, is at least fairly consistent.

Output, at this rate, is nearly 1.8-million tons weekly. This compares with last year's long-sustained rush at 2¼-million a week.

Considering this drop, **the remarkable thing is that price shading hasn't broken out on a wider scale** than it has.

The one spot of acute price weakness in the steel industry is in scrap (which means lower costs for the steelmakers).

A grade of scrap that brought $43.50 a ton last summer recently was quoted at $27 (with few, if any, takers).

Steelmakers, in fact, have few worries on this raw material. Last season ore came down the Lakes in record volume. Blast furnaces have poured more pig iron than has gone into steel. And scrap piles are sky high.

—•—

Here's what lies behind the troubles in zinc and lead that were dumped this week on the White House steps:

• Reduced operations in factories turning out durable goods. This stems, in part, from the drive to reduce inventories at all levels.

• Too much foreign metal. Efforts to cut back American mine output have been successful, but that avails little in the face of imports.

But **diagnosis is easier than treatment.** Help for producers, in these circumstances, will kick back on users sooner or later.

Adding to the government's stockpiles would be the easiest way to aid metal prices. However, this could hardly be justified on strategic grounds. Holdings of lead and zinc seem ample for likely military needs.

Supply-demand problems weigh particularly heavily on zinc.

Smelters shipped the very respectable total of 877,500 tons last year. That, however, fell 90,000 tons short of production. January produced a surplus of 18,000 tons, boosting stocks almost to 200,000. (Government takings of a couple of thousand tons a month provide small comfort.)

Copper's position is less edgy than zinc's or lead's. Yet consuming industries took only 77,000 tons in January—far less than any month last year and 35,000 short of production.

Refinery stocks shot up to 108,000 at the end of January.

Surplus copper outside the United States now totals 280,000 tons (up about 160,000 in the last 12 months).

Included in the overhang, of course, is Chile's steadily rising hoard of well over 100,000 tons. Uncle Sam, stockpiler, still is price conscious.

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the new

Miracle MONGOL

most wanted

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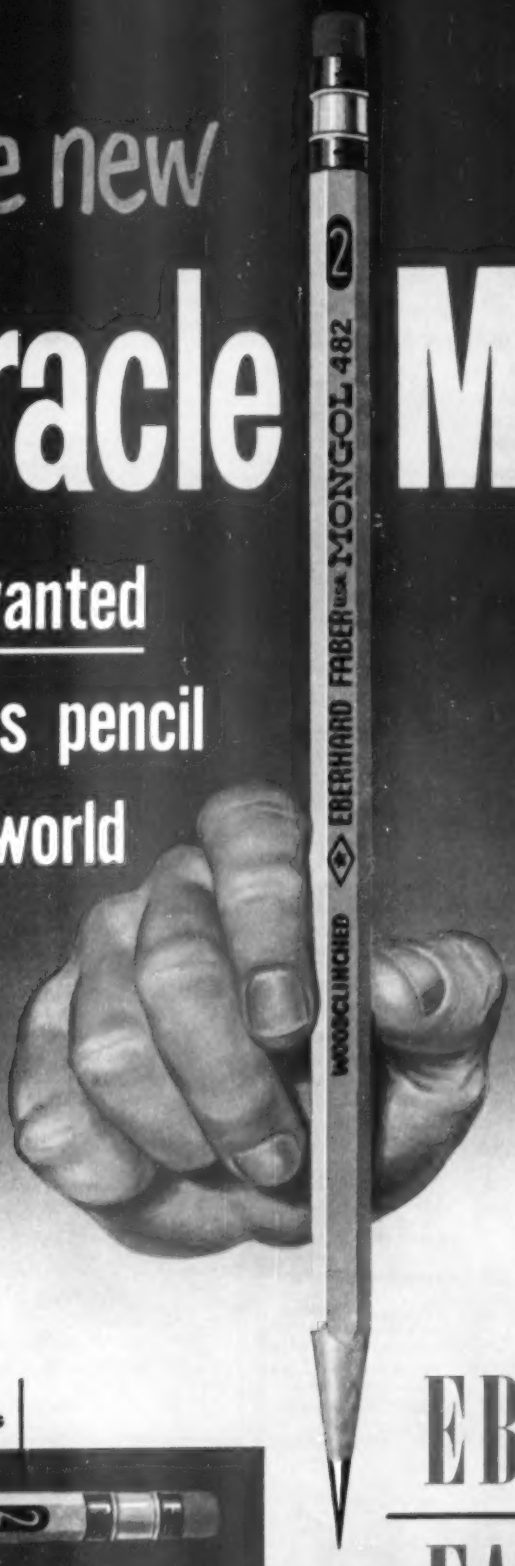

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Getting just the right pencil or eraser for each job saves time and trouble...costs no more! Which should YOU be using?

A. ARTISTS, ENGINEERS, DRAFTSMEN! 18 controlled degrees, plus superb smoothness makes *Microtomic* the choice of men at the board. Scientifically balanced for perfect control.

B. DISCRIMINATING PEOPLE choose *Van Dyke* for ultra-smoothness and its flat adjustable eraser.

C. WRITERS ATTENTION! The extra black, thick lead *Ebony* writes smoothly on any paper. Perfect for quick memos, sketches and layouts too.

D. ACCOUNTANTS prefer *Thin-Rite* for small, neat figures. Sharpens to a fine point and holds it!

E. A BOTTLE OF INK IN A PENCIL is safer and quicker to use. *Noblot* satisfies legal requirements as well as your personal convenience.

F. WRITES ON ANY SURFACE—glass, metal, plastic, cellophane, even movie films can be clearly marked with *Marker* paper-wrapped or mechanical pencils. Popular colors.

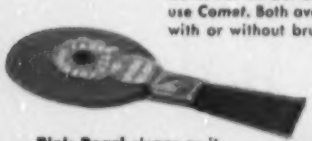
G. FOR WRITING, DRAWING, AND PAINTING! The miraculous *Mongol Colored Pencils*. 36 colors, thin, strong indelible leads. Ideal for charts, maps and color visuals.

H. OFFICE PEOPLE by the thousands use brilliant *Colorbrite* for permanent color. High visibility in any light, writes smooth as a black lead pencil. **J.** cil. 26 colors. *(J) Colorbrite leads* in "see-thru" plastic barrels are also available, excellent if you prefer the mechanical type pencil.

PAPER-MATED ERASERS

Van Dyke...typists' choice for soft surface letterheads, tissues and carbons. For harder surfaces use *Comet*. Both available with or without brush.

Ruby firm and durable for office forms. Erases black or colored pencil marks.

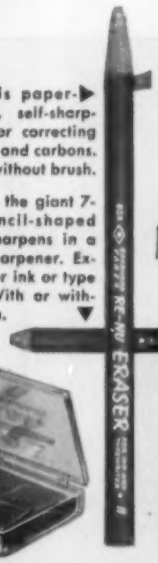


Pink Pearl cleans as it erases. Exceptional quality removes black pencil marks without roughening paper.

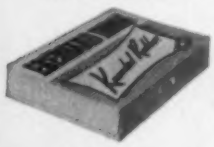
Star Plastic Type Cleaner removes dirt and ink from typewriter keys, office machines, rubber stamps, etc. Nothing to spill, keeps hands clean.

Re-Nu is paper-wrapped, self-sharpening. For correcting originals and carbons. With or without brush. ▶

Singlex, the giant 7-inch pencil-shaped eraser sharpens in a pencil sharpener. Excellent for ink or type marks. With or without brush. ▼



Kneaded Rubber picks up pastels, black lead or charcoal. Ideal on tissue thin surfaces.



Save Time and Twine with Eberhard Faber *Rubber Bands*. Strong, clean, dependable, stretch 7 times their length.

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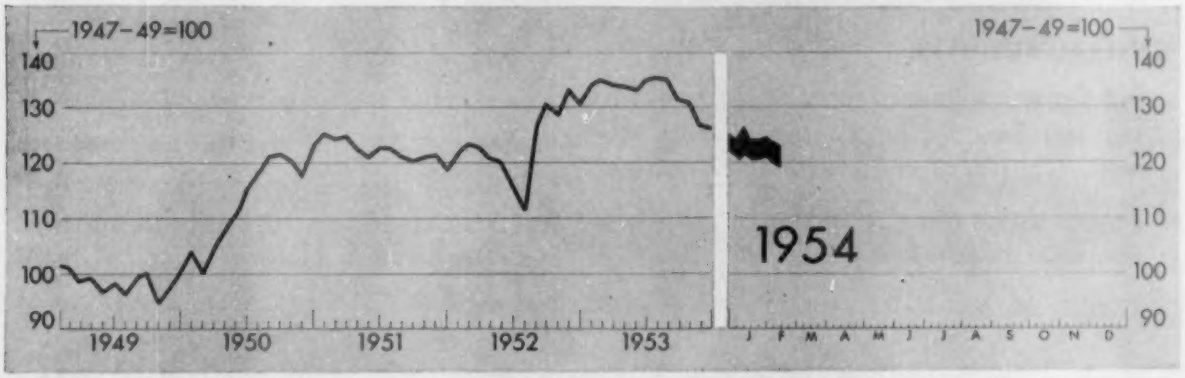
FIGURES OF THE WEEK



	§ Latest Week	Preceding Week	Month Ago	Year Ago	1948 Average
Business Week Index (above)	*122.9	†123.2	124.7	135.0	91.6
PRODUCTION					
Steel ingot production (thousands of tons)	1,772	†1,774	1,766	2,235	1,281
Production of automobiles and trucks	140,616	†138,987	149,841	147,103	62,880
Engineering const. awards (Eng. News-Rec. 4-week daily av. in thousands)	$30,954	$30,658	$32,542	$56,533	$17,083
Electric power output (millions of kilowatt-hours)	8,684	8,674	9,014	8,147	4,238
Crude oil and condensate production (daily av., thousands of bbls.)	6,322	6,271	6,333	6,545	4,751
Bituminous coal production (daily average, thousands of tons)	1,306	†1,401	1,365	1,428	1,745
Paperboard production (thousands of tons)	237,563	228,571	243,316	245,664	167,269
TRADE					
Carloadings: manufactures, misc., and l.c.l. (daily av., thousands of cars)	66	65	64	74	82
Carloadings: raw materials (daily av., thousands of cars)	38	39	40	41	53
Department store sales (change from same week of preceding year)	–1%	†–2%	+6%	+1%	+30%
Business failures (Dun and Bradstreet, number)	277	238	200	200	22
PRICES					
Spot commodities, daily index (Moody's Dec. 31, 1931 = 100)	422.5	420.2	418.3	409.8	311.9
Industrial raw materials, daily index (U. S. BLS, 1947-49 = 100)	81.6	82.3	82.3	91.2	††73.2
Foodstuffs, daily index (U. S. BLS, 1947-49 = 100)	97.6	97.4	97.2	85.5	††75.4
Print cloth (spot and nearby, yd.)	19.6¢	19.8¢	19.7¢	23.8¢	17.5¢
Finished steel, index (U. S. BLS, 1947-49 = 100)	140.9	141.3	141.4	130.5	††76.4
Scrap steel composite (Iron Age, ton)	$25.33	$26.67	$28.50	$43.67	$20.27
Copper (electrolytic, Connecticut Valley, E&MJ, lb.)	29.956¢	29.975¢	29.960¢	24.500¢	14.045¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.)	$2.41	$2.36	$2.37	$2.32	$1.97
Cotton, daily price (middling, ten designated markets, lb.)	34.14¢	33.96¢	33.19¢	32.63¢	30.56¢
Wool tops (Boston, lb.)	#	$2.12	$2.12	$2.10	$1.51
FINANCE					
90 stocks, price index (Standard & Poor's)	206.3	208.1	202.5	203.3	135.7
Medium grade corporate bond yield (Baa issues, Moody's)	3.61%	3.63%	3.71%	3.54%	3.05%
Prime commercial paper, 4-to-6 months, N. Y. City (prevailing rate)	2%	2%	2¼%	2¼–2½%	¾–1%
BANKING (Millions of dollars)					
Demand deposits adjusted, reporting member banks	54,789	55,588	56,044	54,349	††45,820
Total loans and investments, reporting member banks	79,868	80,660	80,376	77,878	††72,036
Commercial and agricultural loans, reporting member banks	22,556	22,638	22,846	22,989	††9,299
U. S. gov't guaranteed obligations held, reporting member banks	32,409	32,989	32,870	31,729	††49,879
Total federal reserve credit outstanding	25,815	25,860	26,230	25,912	23,883

MONTHLY FIGURES OF THE WEEK		Latest Month	Preceding Month	Year Ago	1948 Average
Wholesale prices (U. S. BLS, 1947–49 = 100)	January	110.8	110.1	109.9	78.7
Housing starts (in thousands)	January	66.0	68.0	72.1	55.9
Bank debits (in millions)	January	$154,294	$168,596	$145,919	††$85,577

* *Preliminary, week ended Feb. 13, 1954.*
† *Revised.*
†† *Estimate.*
\# *Insufficient trading to establish a price.*
§ *Date for "Latest Week" on each series on request.*

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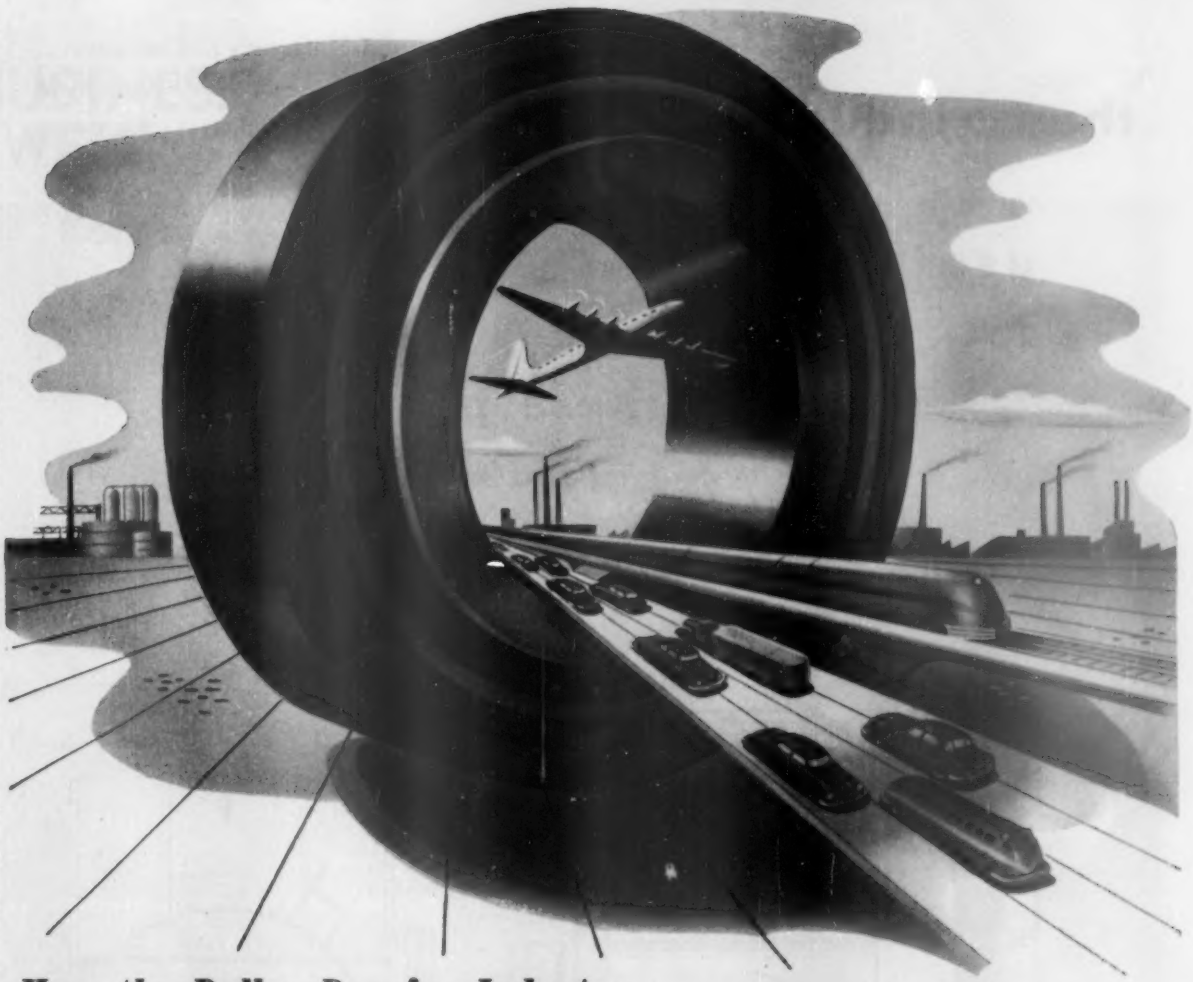

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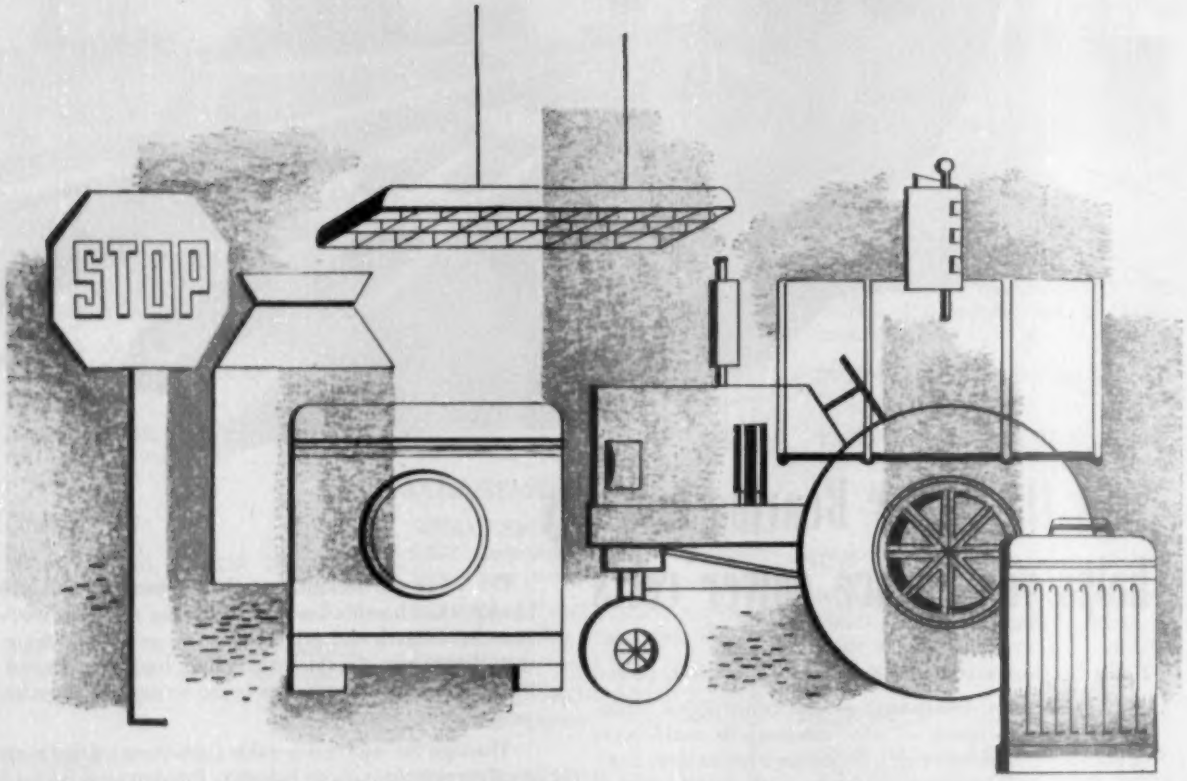

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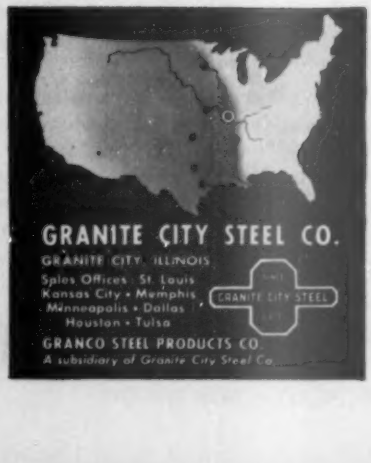

BUSINESS WEEK

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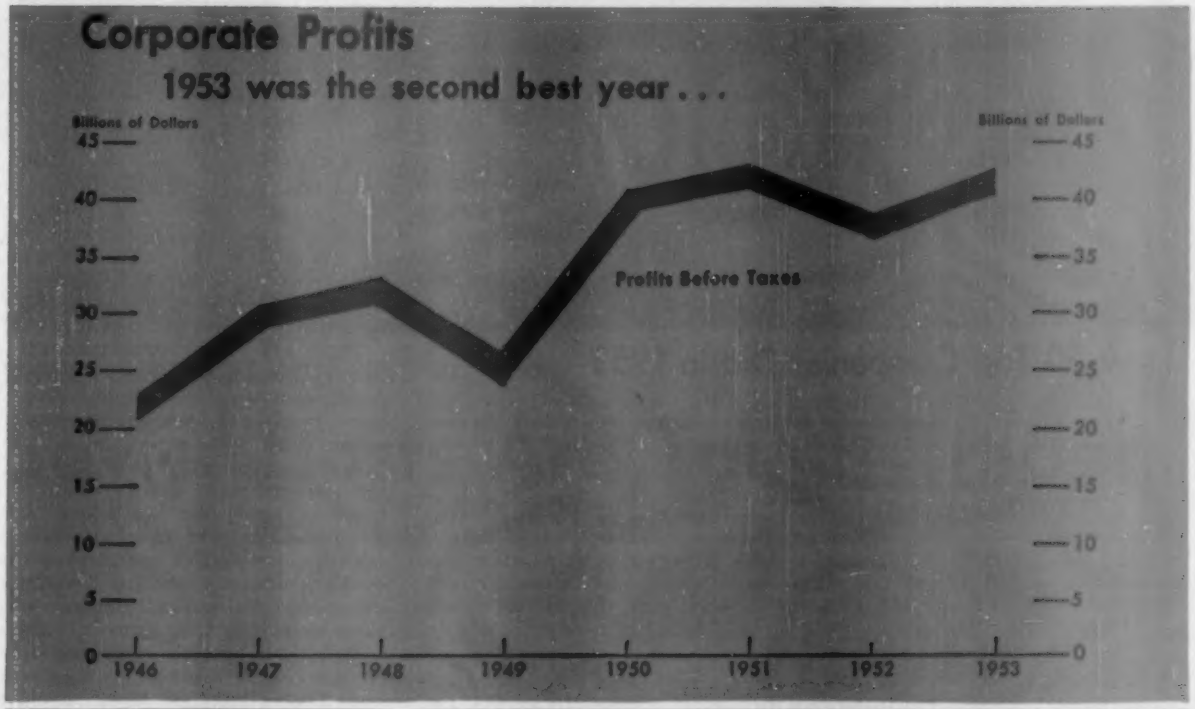
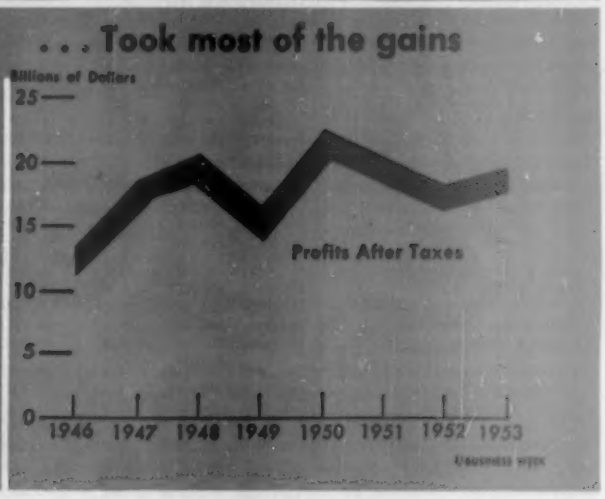
FEB. 20, 1954





Yet the Pinch Hardly Hurt at All

Last year was the biggest on record for production. And, partly because of record output, competition was keen—even in long-booming lines like automobiles. So if corporate profits failed to match the production level, it should be no great surprise to anyone.

Still, profits gave a reasonably good account of themselves. Before taxes, they were the second best on record. After taxes, they stacked up as the fourth best.

• **The Difference**—Corporate profits before taxes, according to a Dept. of Commerce estimate, reached $43.2-billion in 1953—a scant $500-million below the mark of $43.7-billion set in 1951. But a straight dollar comparison doesn't quite tell the whole story.

Record profits in 1951 were given a strong assist by rising prices. Between mid-1950 and the end of 1951, wholesale prices rose about 15%. Undoubtedly, some of these price increases

showed up as inventory profits and helped puff the 1951 earnings.

But in 1953, price levels were remarkably stable. Profits were more closely tied to selling effort. Bookkeeping windfalls were scarce, and most profits came the hard way—from the cost-price margins.

• **Taxes**—Next to 1952, last year's record looks even more impressive. Profits before taxes were 10% above 1952's.

Although pre-tax profits topped 1952's by $4-billion, the Treasury took most of the increase. The corporate tax bill was $3-billion higher than in 1952. Corporations paid a total of $23.6-billion in taxes, which just equals the previous record tax total, skimmed off in 1951.

That left corporate profits after taxes last year still the fourth best. They totaled $19.6-billion. This was $1-billion higher than in 1952, but $3-billion under the record high of $22.7-billion—set in 1950, when tax rates were more favorable.

• **Sales**—Early reports from corporations on 1953 sales and earnings show that these near-record profits were widely shared by industry. In most industrial divisions, early-reporting companies were bettering both their sales and earnings records as compared with 1952. Of course, with many companies still to report, the over-all picture may get some somber shading. But the main trend lines will still be prominent—better sales and better earnings than in 1952.

On balance, sales gains were a little more impressive last year than the profit increases. With few exceptions, sales soared. Gains of 15% or more over 1952 were common.

• **Gains and Slips**—As you might expect, products just catching the public's fancy, such as air conditioning, leaped far ahead of 1952. One company upped its sales by more than half.

But new lines didn't explain all of the increased sales volume. Even an old veteran like steel showed plenty of life. You can argue that 1953's showing, as compared with 1952's, looks better than it really is because production in 1952 was held back by a long-drawn-out strike. But you can't argue with the fact that U. S. Steel Corp.'s $3.8-billion worth of sales was the best in its history, nor the fact that Bethlehem Steel Corp. likewise set a sales record.

There was joy in other industries, too. Chemicals, building supplies, paints, containers, nonferrous metals—even textiles and carpets—registered gains.

But there were exceptions. Many of the scattered dips in sales could be traced to lagging farm demand and defense cutbacks. And there were other sales slippages, notably in tobacco. But, as was predicted (BW—Jan.2'54,p74), tobacco companies were able to increase their earnings despite a drop in sales.

• **Profits**—Most of the early-reporting companies were able to carry their increased sales over into higher profits. But there was a sizable minority that didn't. Chrysler, for instance, upped its sales by 28%—but net profits fell 5% behind 1952's. Servel increased sales by 48%, but actually lost money.

Where increased sales failed to beef up profits, competitive pressures were probably pinching earnings. True, there was very little tampering with list prices in 1953. But gearing sales to record output may have meant more concessions than anyone has admitted so far.

• **Stockholders' View**—Narrowing profit margins may start to worry stockholders in 1954. But last year, at least, stockholders had the best year in history. They collected an estimated $9.4-billion in dividends, the highest on record (page 155).

Stockholders who are nervous about 1954 may take comfort from the fact that, last year, companies hung onto a lot of their earnings. Undistributed profits last year totaled $10.2-billion, against $9.5-billion the year before.

This lump of added cushion may mean a lot this year. Many companies have told their stockholders to expect slightly lower sales in 1954. But, with one eye on promised tax cuts and the other on retained earnings, a good number of companies have hinted that they hope to pay out as much in dividends this year as last year.

How 50 Top Companies Did in 1953

	SALES (*Thousands of Dollars*)			*NET PROFIT* (*Thousands of Dollars*)		
	1953	*1952*	*Per Cent Change*	*1953*	*1952*	*Per Cent Change*
Air Reduction Co., Inc.	131,412	124,625	5.4	6,766	7,290	− 7.2
Allegheny Ludlum Steel Corp.	242,091	190,060	27.4	7,791	5,940	31.2
Allied Chemical & Dye Corp.	545,560	490,183	11.1	45,172	40,305	11.2
American Can Co.	660,581	621,698	6.3	30,778	27,380	12.4
Armco Steel Corp.	588,926	518,575	13.6	33,902	31,338	8.2
Avon Products, Inc.	47,033	40,797	15.3	2,413	2,139	12.8
Beech Aircraft Corp.	21,153	24,277	−12.9	627	490	28.1
Bethlehem Steel Corp.	2,082,026	1,691,732	28.4	133,948	90,901	47.4
Bigelow-Sanford Carpet Co.	73,179	67,273	8.8	3,471	−1,252	....
Carrier Corp.	164,438	107,701	52.7	6,107	4,523	35.0
J. I. Case*	111,471	153,542	−24.4	781	7,049	−88.9
Caterpillar Tractor Co.	433,803	477,577	− 9.2	20,254	22,118	− 8.4
Chrysler Corp.	3,347,864	2,600,950	28.7	74,789	78,697	− 5.0
Clark Equipment Co.	122,265	131,815	− 7.2	5,177	5,501	− 5.9
Continental Can Co.	554,437	476,885	16.3	15,681	14,388	9.0
Cook Paint & Varnish Co.	33,659	32,896	2.3	1,054	1,084	− 2.8
Deere & Co.*	378,499	383,181	− 1.2	24,738	35,165	−29.7
Devoe & Raymonds Co.	48,957	45,811	6.1	1,687	1,414	19.3
General Baking Co.	120,496	120,026	0.4	2,207	2,845	−22.4
Grumman Aircraft Engineering Corp.	241,034	220,670	9.2	7,129	5,349	33.3
Hercules Powder Co.	196,999	187,463	5.1	11,681	11,218	4.1
Hussmann Refrigerator Co.	30,027	21,673	38.6	1,739	1,363	27.6
Inland Steel Co.	575,509	460,452	25.0	33,876	23,755	42.6
International Harvester*	1,256,144	1,204,001	4.3	52,029	55,656	− 6.5
Johns-Manville Corp.	252,642	244,708	7.3	19,661	22,620	−13.1
Jones & Laughlin Steel Corp.	624,387	495,401	26.9	31,015	19,482	59.2
Kennecott Copper Corp.	476,668	471,552	1.1	88,687	86,151	2.9
Koppers Co., Inc.	269,496	323,131	−16.6	9,026	8,613	4.8
Libbey-Owens-Ford Glass Co.	212,491	166,443	27.7	19,234	14,908	29.0
Liggett & Myers	586,499	603,081	− 2.8	22,979	21,449	7.1
Mathieson Chemical Corp.	243,576	147,110	65.6	18,756	13,553	38.4
John Morrell & Co.	296,413	292,476	1.3	428	249	72.3
Mullins Manufacturing Corp.	70,529	53,733	31.2	3,330	3,595	− 7.4
National Steel Corp.	.....	.....	.....	49,174	37,559	30.9
North American Aviation	118,166	102,763	15.0	2,780	2,400	15.8
Owens-Illinois Glass Co.	333,024	293,182	13.6	16,267	16,200	0.4
Pacific Mills	121,235	111,070	9.2	2,434	2,024	20.3
Republic Steel	1,137,124	918,447	23.8	56,744	44,274	28.2
R. J. Reynolds Tobacco Co.	876,190	881,424	− 0.6	34,172	31,949	7.0
Ruberoid Co.	74,484	66,058	12.8	4,576	4,046	13.1
St. Regis Paper Co.	200,334	182,712	9.6	16,157	12,702	27.2
Servel, Inc.	147,587	99,545	48.3	−1,984	1,724	.....
Sunbeam Corp.	79,860	66,360	20.3	6,663	6,049	10.1
Talon, Inc.	29,231	24,873	17.5	1,306	908	43.8
Union Carbide & Carbon Corp.	1,025,833	956,931	7.2	102,783	98,321	4.5
U. S. Steel Corp.	3,861,107	3,131,732	23.3	222,736	143,688	55.0
United Carbon Co.	34,369	30,624	12.2	3,887	3,598	8.0
Walworth Co.	41,856	47,812	−12.5	1,116	1,644	−32.1
Wheeling Steel Corp.	217,356	178,274	21.9	12,458	10,951	13.8
York Corp.	87,097	60,540	43.9	3,007	2,452	22.6

** Fiscal Year Ended October 31, 1953*

BRITONS AT KREMLIN FIND . . .

Soviet Hosts Are Tough Traders

A group of some 30 British industrialists arrived back in London early this week from a business junket to Moscow, bringing first-hand knowledge of what it's like to bargain with the new Soviet regime over trade, and a pretty good idea of what the Kremlin's present trade policy adds up to. They probably have as good an idea of this as the three Western foreign ministers have of over-all Soviet diplomacy now that they have finished a long session with Molotov in Berlin (page 143).

Take what the British businessmen told BW reporters. Add the impressions brought back by smaller groups of German and French traders. And you can say this much about current Soviet trade moves:

• The Malenkov regime is not waging a phony trade offensive like the one Stalin launched at the Moscow Economic Conference of April, 1952. The Kremlin now really wants to expand trade with the West—to get much-needed machinery as well as to gain political advantages in the process.

• Soviet talk of buying $1-billion worth of British goods over the next three years is unreal. As the British see it, this three-year shopping list is the total Soviet import plan for Western European goods. But there's no doubt that Moscow aims to push its buying in Britain especially hard, perhaps to a total of $60-million this year—that's one attempt to pry the U.S. and Britain apart.

• The Russians drive a hard trade bargain on a purely business basis, regardless of any political payoff they expect. And if they can, they will make barter deals or a "balanced account" arrangement rather than pay in gold.

• **Red Carpet**—The returning Britons unanimously say that they were well treated in Moscow—in fact, stuffed with caviar, vodka, and good cheer. More important, they felt they had made "promising contacts." And in every case they found Russian officials well informed about their line of business in Britain—shrewd buyers who knew exactly what alternative goods were available and at what prices.

The visiting Britons were taken to see Soviet plants and a number of Moscow's sights, like the Great Kremlin Palace (picture above). One of the group said: "If you didn't know they were Communists, this might have been any other business call—only I wish every foreign government was as good to do business with."

Six German businessmen who were in Moscow about the same time, though without the fanfare, had much the same impressions. They also had the red carpet rolled out for them. One took his wife along and she was allowed to stroll freely through Moscow's streets with a camera.

• **A Change**—Among the German group were businessmen who knew the pre-war trade routine in Moscow. They found today's Russians just as anxious to dot each "i" and cross each "t." But they noticed one difference: Russian negotiators today are more willing to act on their own initiative—apparently because fear of Siberia or a firing squad is gone since Stalin's death and Beria's ouster.

• **Costly Business**—Business isn't conducted in Moscow, of course, at the expense of the Kremlin. Most of the members of the British group spent $2,700.00 each for their two-week visit. Before leaving London, each had to buy "Intourist" coupons at $20 per day. The British Treasury added an allowance of $90 per day.

Many of the British group returned to London with nothing to show except memories of entertaining on a scale not unlike that of the Thousand and One Nights. Still contracts were signed to a tune of $25-million to $30-million—for machine tools, heavy and medium presses (including wood veneering presses), textile machinery, diesel generating sets, diesel shunting locomotives, and some drugs.

• **Haggling**—But in the bargaining the British were confronted with bids by Germans, Finns, and Swedes at lower prices. Russian officials also confronted them with the British price list for 1950, asked why present prices were higher. The haggling reached the point where William Asquith, British machine tool manufacturer, told a Reuters' correspondent: "They are nice inquiries, but there's no point going bankrupt in the process." All the same, Asquith ended up with a contract amounting to $1.4-million.

The bargaining actually started in Britain some months earlier, when London-based Soviet trade emissaries approached a large number of British firms. In every case they indicated that final negotiations had to be in Moscow.

In the interval the Russians shifted their interests. In the preliminary talks the emphasis was on machinery for

food processing and consumer goods manufacture. But in Moscow the chief Russian interest turned out to be ships, generators, electrical equipment, machine tools (including the heaviest types).

• **Embargoes**—At least half of the items (61 in all) on the want list foreign trade minister Ivan G. Kabanov presented to the British are now under an export embargo. Even so, the British believe it's worth exploring how genuine the Russian demand for these goods actually is. J. B. Scott, of the engineering firm of Crompton, Parkinson, Ltd., who led the British group, told Kabanov that he was authorized to say that the British government welcomed his statement and saw no reason why trade shouldn't develop—"subject to the issue of export licenses."

Actually, some contracts made in Moscow were for goods for which the British government probably will never grant an export license. But British businessmen and union leaders are hoping that in time they can force the government to stretch somewhat its definition of "strategic" goods.

And there's no doubt that the Russians expect political pressures in Britain to help. They are pressing their buying inquiries in just the industries that are getting worried about employment—industries like shipbuilding and machine tools. Last year they were pressing for textiles, which were then in a slump.

• **More Visits**—Now two more British groups are set to go to Moscow at Russian invitation—a group from the machine tool industry and one from shipbuilding.

The first includes some of Britain's top machine tool manufacturers, mostly firms that make heavy tools and that supplied Russia in the '30s. This group is led by Sir Greville Maginness, chairman of the Associated British Machine Tool Makers; it includes about a dozen directors and some technical experts.

One member of this group has already said it was Russian orders that kept many British machine tool makers alive in the early '30s.

• **Payment**—There's no telling what these Soviet-British trade talks will actually produce in additional British exports. Probably a maximum figure for the current year would be $50-million to $60-million. That compares with exports from Britain to Russia of only $9-million in 1953.

But before trade reaches even the $50-million level the problem of payments will have to be worked out. During the Moscow talks the Russians insisted that Soviet purchases in Britain be balanced by British imports from the Soviet bloc. Since the Soviet bloc hasn't much to ship Britain, there's a ceiling on such trade.

• **Gold or Credit?**—However, there are two ways to finance larger British exports—by shipments of Russian gold, or by British credits.

Last year when Soviet grain exports to Britain failed, and Russia needed sterling to finance other sterling area purchases, Moscow shipped gold to London. No doubt Moscow would ship gold again as a last resort, but not until it has explored credit possibilities.

Financial men in London figure that if the Russians place big orders for machinery not on the present strategic list, they stand a good chance of getting normal credit facilities.

The British Treasury would undoubtedly permit private two-year and three-year credits tied to capital goods delivery.

ROBERT R. YOUNG and . . .

PATRICK McGINNIS are both . . .

Trying to Run Railroads

In Wall Street this week the rails were ringing with echoes from the days of the Hills and the Harrimans, when titans of finance fought it out for railroad empires.

One clash centers around the New York Central, the nation's second largest carrier. Robert R. Young is determined to wrest control from management headed by president William White.

And another battle, with much less publicity, is building up between broker Patrick B. McGinnis and the management of the New York, New Haven & Hartford RR, New England's "life line" (BW—Feb.13'54,p67).

Neither road is the blue-chip carrier it once was, but control of a rail system is still a prize worth fighting for. Wall Street is getting set for a rip-roaring battle for proxies before the two roads' annual meetings this spring.

• **Different Motives**—Except in the timing of their campaigns, Young and McGinnis apparently have nothing in common. Wall Street sees their motives as quite different:

• Young burns to hold greater power in the railroad business than he could ever wield just as boss of the Chesapeake & Ohio (BW—Jan.30'54, p90), the nation's biggest coal carrier.

• McGinnis wants to get more dividend income, and greater capital gains potential, from the large block of New Haven stock his group holds.

• **Different Tactics**—Both men are critical of the earning ability of present management, but their tactics diverge from there. McGinnis sits tight on that one criticism, and on the claim that his group holds as much stock in the New Haven as the management group holds. Young goes on to proclaim a crusade against "a small clique of banking interests, the same group that brought on the 1929 crash."

Young's campaign opened with announcement of an effort to "organize . . . Central stockholders to take possession of their property." The right kind of management, he said, would earn profits permitting $7 to $10 a year dividends, compared with $1 last year and 50¢ so far this year.

The moment he learned he had been blackballed by the Central's board in his bid for directorships (BW—Feb.13 '54,p36), Young stepped up his attack in front-page publicity.

• **Repartee**—Young didn't catch his adversary cloistered in an ivory tower. White, the Central's spokesman, came down in the street to slug it out—also on the front pages.

The Central's board is dominated, said Young, by "Morgan interests." It wasn't a new thought, but White didn't ignore it. "All dictators like to

set up straw men," he said. "These are just the tactics of little Caesars."

"Unbecoming" for Central's president to be "running a proxy fight" when he should be running the railroad, said Young, adding: "Down in Texas, where I come from, we don't send a hired man out in front in a fight."

Since the Central's directors have decided, retorted White, "it is inimical to the road's best interests for Mr. Young to take over . . . it is part of my job to keep this from happening . . . just as much a part of my job as to run the railroad." And, he gibed, "I will continue to run it from New York and all points on the road, not from Palm Beach or Newport" (where Young has homes).

• **Stock Tussle**—How much Central stock Young's group actually holds is an unknown statistic. All the peppery financier has revealed so far is that he holds 100,200 shares, that his associate Allan P. Kirby owns another 100,000. He also speaks of "substantial" holdings by Alleghany Corp.

To the uninitiated, the mob scenes around the Central's trading post on the Big Board might seem to indicate that Young was still buying. In the first four trading days after Young's turndown by Central's directors, more than 400,000 shares changed hands. The desire to buy was stronger than the desire to sell: The price rocketed from $20.87 a share to $26, highest in three years, and closed Monday at a sturdy $25.25.

Veteran Wall Streeters doubted, however, that Young's group had been buying in any volume. To them, it looked more like the flurry of speculative buying that a proxy fight often touches off.

• **Major Holdings**—Some observers say the winner in the struggle will be the one who succeeds in wooing the most "little fellows." Few Central shares are held by institutional investors. But there are some other big holders besides Young, Kirby, and probably Alleghany Corp.

Chesapeake & Ohio, for example, owns 800,000 shares, a 12½% voting interest bought while Young was C&O chairman. If C&O could vote this stock, of course, it would be in Young's favor. However, the Interstate Commerce Commission has never permitted the road to do this. The shares must be voted by Chase National Bank as an "independent" trustee. Young doesn't claim Chase's support, but he warns that if the stock "is voted against the wishes of its owners, it would be a breach of trust."

Union Pacific RR, friendly to White, is another big holder, though its block has shrunk from 160,000 shares to 88,257 in the past few years.

White also speaks of a pledge of support from an individual stockholder who owns more shares than Young. He describes this mystery man only as "interested in more than one railroad," but "not a Morgan partner, a broker, or a banker." Nor does he represent an estate or trust, says White.

• **Proxy Appeal**—Both sides are presumably busy drawing up their solicitations for proxies. Under the "full disclosure" rule, Securities & Exchange Commission must approve this material. That may take 10 to 20 days.

Proxy material is normally mailed to stockholders without any follow-up. This time, though, both sides are expected to employ professional proxy seekers to help stockholders make up their minds. They'll use personal visits, phone calls, and—very likely—newspapers, radio, and TV.

Published figures indicate some 44,000 holders of Central's 6,447,000 outstanding shares. Undoubtedly there are many more individual holders, for stock of several owners may be held in one broker's name.

Under Big Board rules, stock held in a broker's name for a customer's account can normally be voted freely by the broker if (1) the owner hasn't responded to proxy material sent to him, and (2) the broker has informed him of an intention to vote the stock as he, the broker, chooses.

However, this rule is intended primarily to help companies get quorums for routine meetings, and it's unlikely that any Central stock can be voted this spring except by actual owners.

• **The Winner?**—Both Young and White profess to be confident of winning. Last week, Young claimed support of 90% of the Central's shareholders; this week, though, he shaved his victory margin to a three-to-one edge.

Most Wall Streeters questioned this week are inclined to think White's group will get a vote of confidence. Of 14 New York financial writers who were polled at a social gathering this week, only one thought Young could win a showdown fight.

• **How About McGinnis?**—The Street has less positive views about McGinnis' chances of shaking up New Haven management. McGinnis hasn't grabbed the headlines as Young has, but his career has been along similar lines.

McGinnis gained a reputation first as rails analyst, then as partner, of Pflugfelder, Bampton & Rust, a Big Board firm that has since split up. He was one of the first to discover the gleam of gold in the so-called "reorganization rails" that made the market seethe in the late '30s and the '40s. Later he branched out directly into the rail business: Norfolk & Southern, Central of Georgia, and the New Haven.

Unemployment . . .

. . . turns out to be higher than the statisticians said, according to Commerce Dept's new sampling method.

Secretary of Commerce Sinclair Weeks this week took the wraps off a new estimate of unemployment that showed it 728,000 higher than the method the Administration has been using.

The new estimate is based on a sampling of 25,000 homes in 230 employment areas, instead of the 68 areas used in the old survey method. It pushed the estimate to 3,087,000, instead of the 2,359,000 indicated by the old survey.

Startling though the difference is, you can't draw too many conclusions from it just yet. Statisticians are sure that it represents an error that has been accumulating for several months. They think the figures estimated from the old sample were right as recently as six months ago and probably weren't far off as late as October when they showed a low for the year of 1,162,000 unemployed. This would mean:

• The level of unemployment now is substantially higher than anyone had thought.

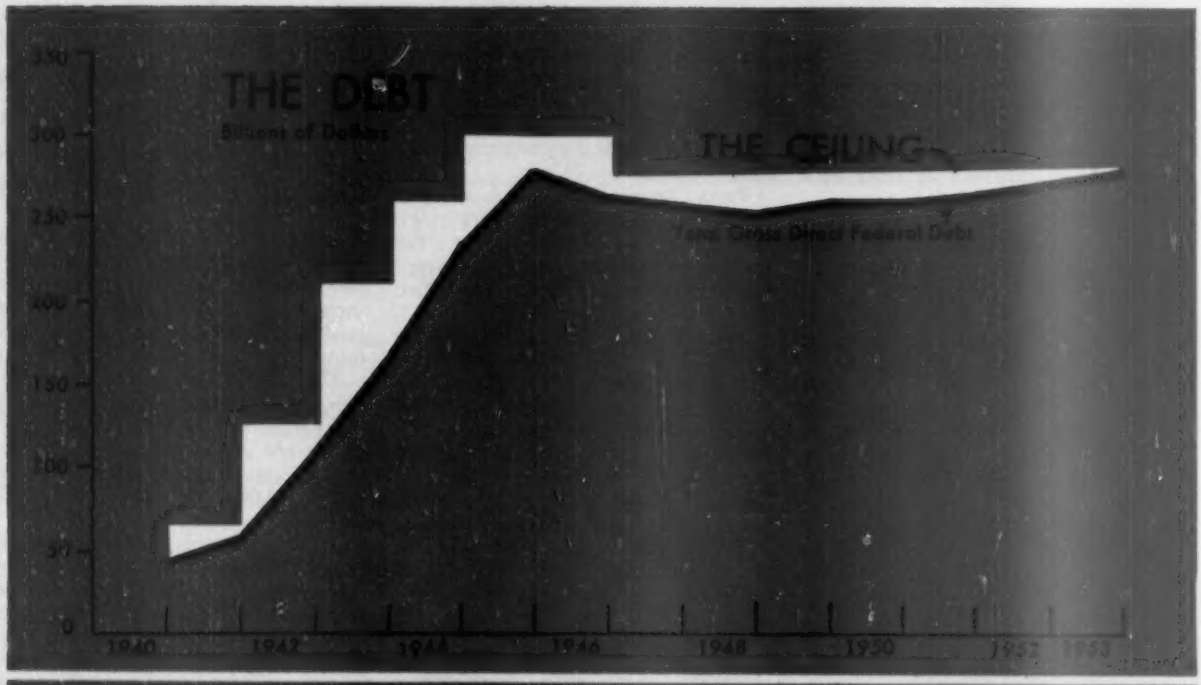
• The rise since last summer has been swifter—but not so swift as it looks if you fall into the statistical trap of subtracting the old-basis December figure of 1,850,000 from the new-basis January figure.

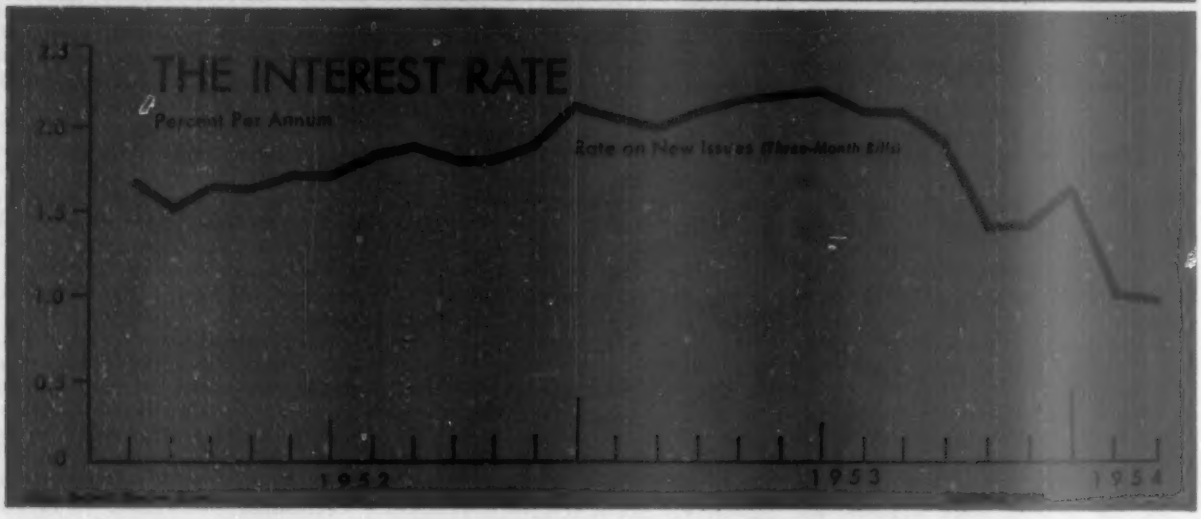
Weeks said the new survey method was still experimental, and that its findings remain to be tested. There's no doubt, however, that it disclosed a marked underestimate of unemployment—and gave critics of the Administration a fresh stock of ammunition.

• **Pessimism Confirmed**—Administration insiders have known for several weeks that the unemployment survey was being revised, and that preliminary figures indicated a higher figure. The result plainly moves them an uncomfortable way toward the 4-million figure that has served as a rough "peril point" in the minds of some of Eisenhower's advisers, based on 1949's slump.

The experts think that most of the error in the old figures crept in when the narrower sample missed an increasing number of pockets of unemployment around the country.

Technicians in charge of the work would not be surprised if the February results showed a narrower gap between the results of the two methods of estimating with the difference winding up closer to 350,000 than the present indication of 728,000.





THE MONEY MARKET IS GIVING THE TREASURY A . . .

New Background for Borrowing

Once-burned and newly cautious Treasury officials are bracing themselves for another try at the long-term money market.

As they read the signs, the dramatic drop in short-term rates in the past six months (chart) means that the stage is now set for another pass at the long end of the market. If successful, this would accomplish three things:

• It would raise a substantial part of the cash that the Treasury will need for its operations in the coming year.

• It would be a step toward the Administration's goal of "pushing out" the maturity of the public debt by reducing the proportion of short-term obligations and increasing the proportion that's in the form of long bonds.

• It would take the bad taste out of the market's mouth, left by last year's unsuccessful try at long-term financing.

• Singed Last Year—It was only last April that an issue of 30-year, 3¼% bonds was driven below par before it got on the market. It stayed below par until the easier money policy begun by Federal Reserve in May and June caused a general rise in bond prices.

This was doubly painful to an administration that sets great store in its independence from Federal Reserve market operation. If the Treasury decides to tap the long-term market, officials are determined to do it this time with an issue the market will absorb at par.

I. Policy, Reappraised

The new Treasury team has had more than a year now to make policy

the way it counts—with decisions. The main purpose of W. Randolph Burgess, Treasury Secretary Humphrey's deputy in charge of debt operations, and his team is plain enough. They want to manage the debt in a way that will cause neither inflation nor deflation.

The Treasury still maintains it has no control over interest—merely adjusting to whatever rate is created by private demand, plus Federal Reserve operations. It still deplores "artificial" Federal Reserve support of U.S. bonds.

• **"Natural"**—Apparently, what Treasury spokesmen mean by a "natural" money market—one free of artificial supports—comes close to what Federal Reserve chairman William McC. Martin, Jr., means when he talks about a "free" money market. They do not mean a market entirely left to its own devices, but they do mean a market in which there is some fluctuation in the price of U.S. securities.

• **Long-Term Shift**—Treasury officials talk as stoutly as ever about one of their debt-management goals—to shift as much as possible from short-term to long-term securities.

Out of nine offerings last year, they managed to lengthen the debt five times. Despite this, the amount of securities maturing within a year is now $392-million greater than it was last February—a case of not running fast enough to stay even. About two-thirds of the debt maturing last year, and the same proportion of new money needs, were met with short-term paper. Officials will probably make a somewhat better record this year, but will have to wait for balanced budgets before ringing up any striking changes in the debt structure.

II. Money Needs

So far, the only thing officials have said about their next attempt is that they would like to time it for late spring—perhaps June. This month's success in a big exchange of maturing issues for one-year certificates and intermediate bonds paved the way (BW—Feb.13 '54,p66) for the spring offering.

The timing that officials now have in mind can be changed rapidly if the market warrants. It's certain only that they will have to wait until after Mar. 22, due to the debt ceiling (chart). On that date, $5.9-billion worth of tax anticipation certificates will be retired with newly collected income tax receipts, so the debt will dip by a like amount.

• **$2-Billion to Start**—There is no chance that the Treasury will try to replace the full amount of the expiring tax anticipation certificates with a long-term issue. One of the points stressed repeatedly by Burgess is the limited quantity of long-term money available at any one time. The issue that disrupted the market last year was for $1.6-billion. This year, officials are talking about something in the neighborhood of $2-billion.

The Treasury will need much more than $2-billion in new money to meet its needs for the balance of the 1954 calendar year, of course. Whatever is not raised in the spring with long-term bonds will be raised later, probably with intermediate and short-term securities.

Total requirements for the year are likely to be upward of $10-billion, plus replacement of maturing issues. The $10-billion would be used to meet a deficit of about $2.9-billion, plus cash payments to security holders who don't want to accept new issues in place of those that are maturing, and net redemptions of savings notes and bonds. But needs could easily go to $15-billion or more.

• **Imponderables**—There's always a lot of guesswork in arriving at potential new-money requirements. It is doubly hazardous this year, because:

• Congress is in a tax-cutting mood. If the deficit—as finally determined by Congress this summer—is greater than $2.9-billion, the burden of raising new money will be greater in the same degree. And Congress could easily double the deficit simply by refusing to keep taxes at the levels proposed by the Administration.

• The dip from last year's record-breaking business levels could knock a substantial hole in receipts. If the decline should be in the neighborhood of 5% of gross national product, it would probably mean a decline of $5-billion or so in tax revenues. Some of this would be felt immediately in smaller revenues from taxes withheld on wages; some would not affect the Treasury's take until next year.

III. Friendly Market

Despite these worries, the prospects for a smooth year of financing are bright. Lessons learned last year with the 30-year bonds won't be soon forgotten.

There are many explanations for that unhappy experience. The official Treasury line plays up a flood of state, municipal, and corporation issues that hit the long-term market at about the same time—$7-billion worth in six months, the biggest total on record. If you accept this analysis, then the Treasury simply misread the demand side of what was essentially a thin market in a time of general money stringency. There wasn't enough long-term money to go around, so the price of the Treasury issue sagged. And money for nongovernment borrowers became tight.

• **It's Different Now**—The Treasury can hardly make a similar mistake this year. The character of the market itself has changed. Business loans are declining. The Federal Reserve has increased the lending power of banks. And interest rates are declining (chart). While the demand for long-term money is expected to stay fairly high, it is not likely to set a new record, as it was doing this time a year ago.

So the Treasury's main worry will be to estimate the supply side of the market—something it will do by conferring with insurance companies, trust funds, and other long-term investors.

• **Another View**—Some money market analysts have another explanation of last year's experience. They blame the bonds' cool reception on the tight-money talk that was coming then from both the Federal Reserve and the Treasury.

Whether in reaction to this line of talk or not, the market bid down the price of the new issue. Twelve days after the issue was opened to trading on a "when issued" basis, it was below par. It stayed there two and a half months.

Any announcements on policy made this year will be in line with the current easier-money policy of the Administration. It's also a good guess that comments in general will be more guarded.

IV. Low Ceiling

Treasury officials wish they had the same confidence about the debt ceiling as they have about the market's reception of new bonds. The $5.9-billion headroom they will have after Mar. 22 won't last long. Beyond that point, they will have to get permission from Congress. And Congress—largely in the person of Sen. Harry Byrd of Virginia—continues a major puzzle.

The House has already approved a rise in the ceiling to $290-billion. This was last year. But the measure never got past the Senate Finance Committee, where Byrd is powerful. He has recently repeated his opposition to raising the ceiling.

• **Plea for Higher Ceiling**—Treasury officials stick to their story that there is simply no way to maintain the normal credit of the federal government except through a rise in the ceiling. But they have carefully refrained from saying they need all the $15-billion rise they recommended last year.

There's some talk among Democrats that they will give the Treasury what it absolutely must have, but in dribbles. This means raising the ceiling a couple of billion at a time—each time with a new round of speeches criticizing the Administration. Democrats figure this might be turned into votes, come the November elections.

Auto Shows Back

They help pull in customers when sales lag, dealers find. National goes all out; even Detroit is doing it.

You don't need statistics to tell the state of the auto business these days; a calendar of auto shows will do almost as well. There'll be about twice as many this year as last, according to one rough estimate.

The reason is simple: Not enough people are coming into the showrooms, so the dealers have to find some other way to build a prospect list and make sales. True, there have been some auto shows every year since the war, with Chicago's super-duper affair topping the list. But many U.S. cities haven't seen an auto show with all cars represented since before the war.

Take Detroit itself, where it has never been hard to sell cars in the postwar years. This week Detroit opened its first auto show since 1940, complete with top-notch entertainers and the flashy experimental cars of all major manufacturers. As in other cities, local dealers' groups put on the show.

• **Typical**—Or, for something more typical of the splash that such shows make, take Nashville. It has been 20 years since there was an auto show in the Tennessee capital. Last week, over 20,000 visitors trekked to the State Fairgrounds for a four-day affair.

They saw a lot more than cars—fashion shows, personal appearances by Lanny Ross and Frances Langford, orchestras—but they also saw plenty of new auto models and the latest in U.S. and foreign sports cars. Somewhat to the surprise of everybody, several cars were sold on the spot—dealers hadn't expected that because of trade-in complications.

In fact, in the Nashville case, it wasn't the dealers who started the whole thing in the first place. The show was dreamed up by the American Legion and the Council for Retarded Children, who sold the dealers on the idea of a benefit venture.

• **Enthusiastic**—Admission was $1, but dealers gave away tickets at their showrooms good for a 25¢ discount. Each dealer paid $175 for space to show four or five cars, plus $125 to help advertise the show. Total cost was $14,000, of which the dealers paid $5,500. With the admissions added, there was about $4,500 left over for the charities.

Dealers thought they got a good bargain, too. Most of them want to make it an annual affair from here out. Even those who didn't make any direct sales took a rosy view; one of them said: "The show made people car-conscious. We'll be seeing them in our showrooms for weeks to come."

There was only one gripe: not enough support at the factory level, according to dealers who said they asked for special show cars but got mostly nothing. Special show cars that did come, such as three extra de luxe Cadillacs and a Pontiac sliced in half, were crowd-getters.

• **Agreement**—Auto dealers as a group echo the Nashville verdict in welcoming the return of shows.

Automotive News lists 30 shows already scheduled this year, with maybe a dozen more to come—that's against 22 last year.

In places that held shows last year, attendance and floor sales are generally down this year—but prospect lists are coming along fine. As one dealer put it: "Anything you can do in this market to sell another car is worth-while."

Ford's Latest Has Two Tops . . .

. . . Mercury's Dream Gets Tryout

Ford Motor Co. lifted the wraps this week on two of its "things to come." The Ford Division's Thunderbird (top picture)—described as a full-sized vehicle that resembles a sports car, and equipped with both a hard top and a convertible cloth top—is slated to go into production in the fall. The Mercury Monterey XM-800 (lower picture), however, is strictly experimental, will be placed in actual production only if public demand warrants.

Both models are being shown to the public for the first time this week at Detroit's auto show (see above).

• **Thunderbird**—The new Thunderbird's hard top is for use in bad weather. If the sun is shining, you can leave it home in the garage. But you don't have to worry if a shower comes on you unawares; the fabric top is always stored behind the seat.

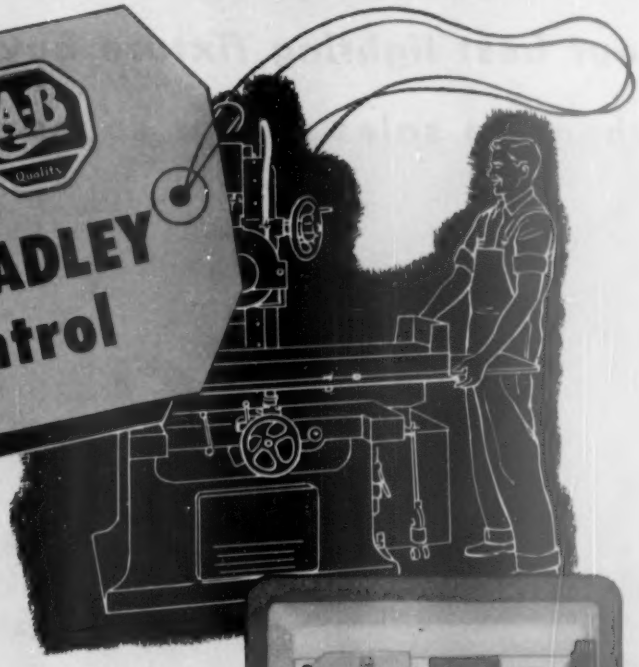
• **Experimental**—But Lincoln-Mercury's avowed purpose in showing its XM-800, on the other hand, is to test consumer reaction to what it calls neither a sports car nor a "dream car of the distant future," but a combination of features of both in a "startlingly new but readily producible automobile."

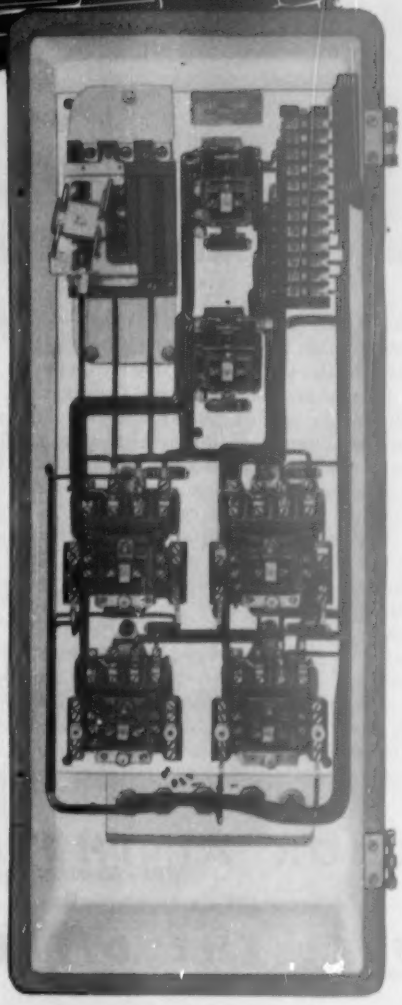
GALLMEYER & LIVINGSTON SURFACE GRINDER

FACTORY EQUIPPED

A-B Quality

with ALLEN-BRADLEY Solenoid Control



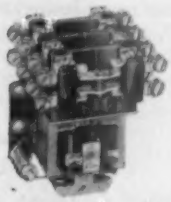


This basic fundamental clearly explains the universal acceptance of Allen-Bradley motor controls: One moving part—one possibility of trouble; two moving parts—two possibilities of trouble; many moving parts—virtually a guarantee of trouble!

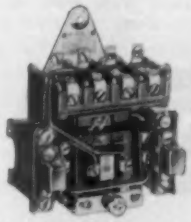
Simplicity of design . . . that is the secret of the trouble free operation of all Allen-Bradley controls. When you eliminate moving or wearing parts like pins, pivots, linkages, and bearings, you automatically eliminate trouble. Since all Allen-Bradley solenoid starters have only ONE moving part, that is your assurance of trouble free control operation. Also, the double break, silver alloy contacts never need filing, cleaning, or dressing. They are always in perfect operating condition.

You cannot go wrong when you specify "Allen-Bradley"—it's QUALITY control! Experience has established this fact.

Allen-Bradley Co., 1332 S. Second St., Milwaukee 4, Wis.



In this Universal Type Bulletin 700 Relay, any contact can be changed from "normally open" to "normally closed" by merely changing the terminal connection.



Bulletin 709, Size 0, Automatic Across-the-line Starter—the smallest member of a line of starters rated up to 300 hp, 220 v; 600 hp, 440-550 v—all identical in design and principle of operation.

ALLEN-BRADLEY

SOLENOID MOTOR CONTROL

QUALITY

This control panel operates the Gallmeyer & Livingston Surface Grinder.

How to know which is your best lighting fixture buy when the sales stories sound alike

Don't guess when you buy lighting fixtures. Don't gamble with your investment by relying only on sales stories and catalog pictures.

Insist on examining the actual fixtures yourself. Handle them personally. Compare them. *Feel* the difference in quality and value. You needn't be a lighting expert. A good fixture tells its own convincing story. A poor one quickly reveals its flaws.

We hope you will consider Day-Brite's PLEXOLINE or others in the complete Day-Brite line for your lighting needs. We know Day-Brite fixtures give you more for your money. The important thing is for *you* to know. We urge you to *feel* the difference before you buy.

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More than just a fixture, PLEXOLINE is a complete lighting system. Many patterns are possible, including circles, acute and obtuse angles. Conventional runs and single units. For stores, offices, schools, hospitals. Available in Slimline and Rapid Start Fluorescent. Write today for informative literature.

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LOOK AT THE PLEXOLINE®

FEEL THE DIFFERENCE...

BEFORE YOU BUY!

BUSINESS BRIEFS

Freight rate feud of long standing between Baltimore and Philadelphia (BW—Mar.28'53,p150) has finally been settled by the Interstate Commerce Commission. The feud centered on imports of iron ore; both cities, as ports, are interested in handling as much of the incoming ore as possible. Baltimore has had a big advantage in that its westward rail freight rates on ore were at least 20¢ a ton lower than those of other Atlantic ports. Now, ICC has O.K.'d a 20¢ reduction asked for by Pennsylvania RR, which serves Philadelphia.

•

Zinc producers, sorely troubled by big supplies and small demand, got a promise this week that the White House will look for a cure. The price of zinc was 19½¢ a pound in October, 1951. It had dropped to 9½¢ last week; on Monday it fell another notch to 9¼¢.

•

Two minority stockholders went to court in an effort to block the sale of the assets of RKO Pictures Corp. to Howard Hughes (BW—Feb.13'54,p33). They said the corporation's assets are worth $97-million; Hughes had offered $23.5-million.

•

The "Little Big Inch" pipeline, now carrying natural gas between Beaumont, Tex., and Linden, N. J., may soon be carrying the commodities it was originally built for—petroleum and petroleum products. Texas Eastern Transmission Corp. will make the decision at its Mar. 2 directors' meeting. Observers say the economics of the situation are such that the company can save money by making the switch.

•

Nonfarm housing starts in January fell 3% below the figure for December and 8% below the figure for last January, the Bureau of Labor Statistics reports. Biggest share of the blame, as the bureau sees it, belongs with the weather.

•

Robert R. Young, girding for his New York Central proxy fight (page 28), scored at least a paper victory on another front when ICC examiners approved a new Missouri Pacific RR reorganization plan—upsetting the earlier plan to which Young had objected. Under the new plan, which must still be officially approved, present holders of the railroad's common will receive a stock interest in the new company contingent on future earnings. Young's Alleghany Corp. holds about 48% of the common.

Another example of efficient power at lower cost

How to look at a BRIGHT FUTURE

THESE bug-eyed people are seeing new things at a Cooper-Bessemer foundry where big Diesels and huge gas engine compressors begin to take shape. At this instant, magnesium is being combined with molten metal to produce nodular or ductile iron . . . emitting a flash so dazzling that all eyes must be protected with glasses as dense as the darkest welder's goggles.

First in America licensed to produce magnesium treated iron for commercial use, Cooper-Bessemer is finding ways to make this new metal improve engine performance and cut costs. New metal? Yes indeed. Its future is still uncharted. But it's a *bright* future because nodular iron combines much of the strength and ductility of steel with many of the economies and other advantages of cast iron. This opens great new possibilities.

For over a century, users of heavy-duty power have benefited by developments pioneered by Cooper-Bessemer. And it's still that way. So if you have a stake in power, better find out about all the *new* things now being done by one of America's *oldest* engine builders.

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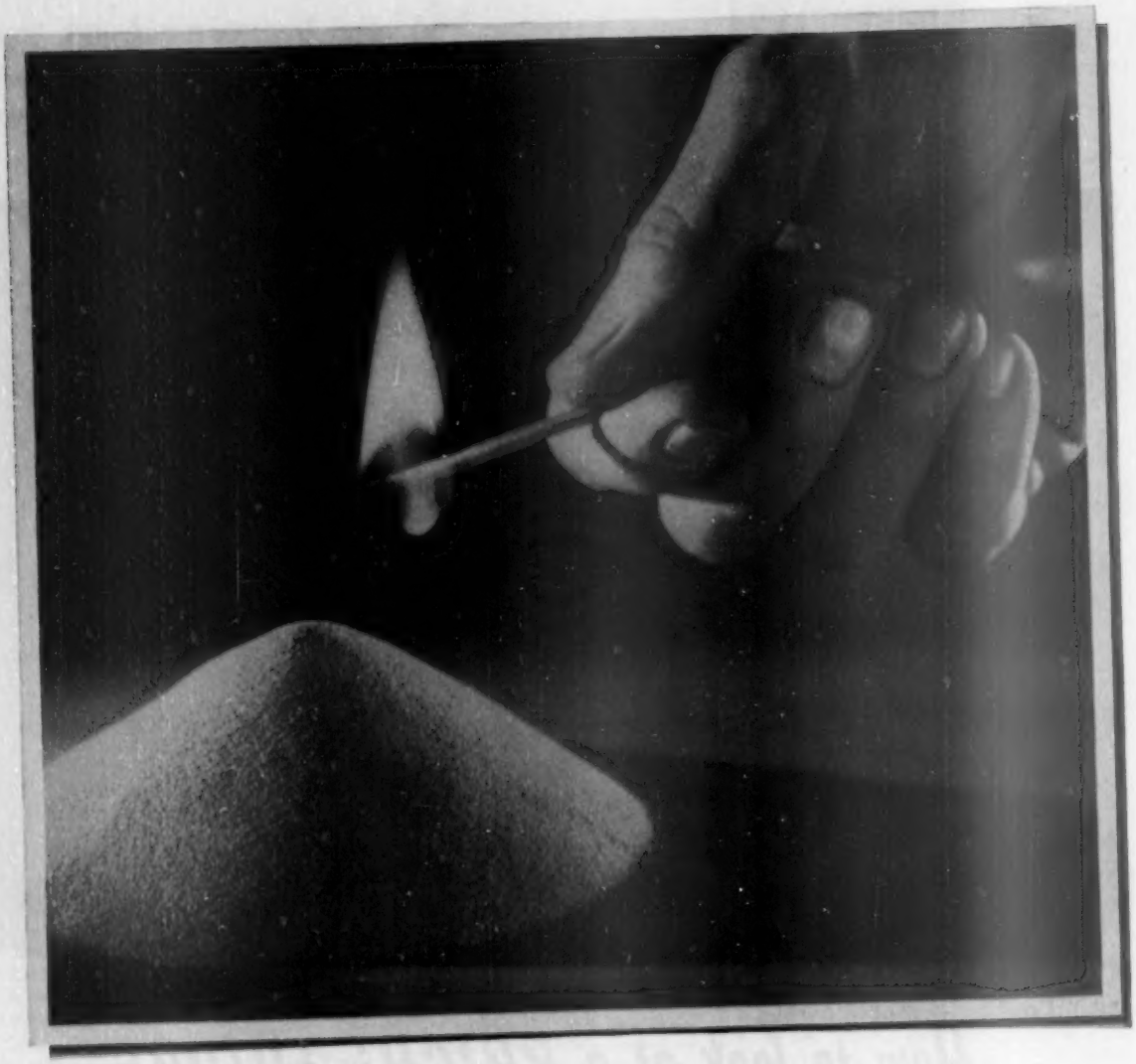
DIESELS • GAS ENGINES • GAS-DIESELS • ENGINE-DRIVEN AND MOTOR-DRIVEN COMPRESSORS • HIGH PRESSURE LIQUID PUMPS



THE FLASH FIRE THAT NEVER HAPPENED

This is about a man who lit a fire to prevent a fire.

He was visiting a small machine shop. The work going on was something the shop had never done before — grinding and sanding magnesium castings. He noticed one man grinding castings while magnesium dust piled up on his bench and his clothing. The man was smoking.

The visitor scooped up a handful of the dust and walked to the yard with the worker and the foreman. He put the dust on the ground and touched a match to it. It flared like a sparkler.

Startled, the foreman jumped to stamp out the flames, only to see them shoot out beneath his shoe.

"Now you've seen how a fire-bomb worked in the war," the visitor said. "And why some operations on magnesium require special precautions. A wet grinding method is a must. No smoking is another."

The visitor was one of Liberty Mutual's loss prevention engineers, making a regularly scheduled visit to a policyholder's plant. His job is to turn to the policyholder's advantage his experience as an engineer of the largest writer of Workmen's Compensation.

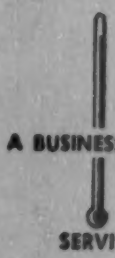
This incident gives you a glimpse of only one phase of "Humanics" — the most complete program ever devised by an insurance company to cut down loss in industry. Humanics increases profits by eliminating the uninsured cost of accidents as well as by cutting insurance costs. For information, call the nearest Liberty Mutual office, or write to us at 175 Berkeley Street, Boston 17, Massachusetts.

LIBERTY MUTUAL
INSURANCE COMPANY
HOME OFFICE: BOSTON

We work to keep you safe

WASHINGTON OUTLOOK

WASHINGTON BUREAU
FEB. 20, 1954



Congress wants more tax cuts than Eisenhower does. The pressure to go beyond the President's revision bill is on the rise. There's politics in it, of course. The House and a third of the Senate are up for reelection in November. But worry over the business outlook plays a considerable part. There's growing concern that the downtrend in business may not be halted, short of a serious recession, unless consumer buying power is boosted.

Excise reductions are the best bet, as of now. These are the taxes that add about $10-billion annually to the prices of goods and services.

A secret agreement is rumored in the House Ways & Means Committee. According to some members, the Republican majority has decided to vote excise cuts, running to about $1-billion. The hush-hush handling of it is explained on grounds that as soon as plans are announced, the sale of many items would just about dry up while buyers waited for tax cuts.

The plan is for a top rate of 10% on most things. The "sinful" items, liquor and tobacco, would stay where they are. But the above-10% rates on other things would come down—furs, cosmetics, jewelry, light bulbs, cameras, cigarette lighters, luggage, theater admissions, etc.

Individual income taxes also are involved. Eisenhower's revisions of the tax structure put the emphasis on relief to encourage investment—more liberal depreciation rules, easing of the double tax on dividends. Republicans on the Ways & Means Committee backed them, while rejecting Democratic moves to cut taxes on individual incomes.

Politics favor some last-minute reversals. Some of the GOP members on the tax committee are beginning to have doubts whether they can give relief to investors without also giving wage and salary earners a break. Higher personal exemptions are likely.

The Eisenhower attitude on further cuts is in doubt. The President made his proposals in the belief that the slide in business will be short.

Administration is flexible. If the hoped-for business rise fails to show by spring, there will be changes (BW—Feb.6'54,p39). Fact is, the President's advisers today are questioning their earlier judgment.

The showdown will come within six weeks. The Ways & Means Committee may decide to hold up its revision bill until it disposes of excise taxes; these, along with the corporation rate, are scheduled to drop on Apr. 1. Up to now, the Administration has argued for keeping the Korean rates on excises and on corporations—a corporation tax of 52% instead of 47%. But it may have to give ground on both—accept a compromise.

—•—

The cut in dairy products supports shows Benson's plans. They have been piling up in storage, to the tune of 1-billion lb., under the 90% of parity support program. Benson said this was bad about a year ago when he continued 90% supports and told dairies to come up with an answer.

Prices will go down in the retail stores. But it will take time. The support price does not drop until Apr. 1. For the remainder of this month and next, butter will be pushed into storage to get the 90% support price.

WASHINGTON BUREAU
FEB. 20, 1954

There will be a butter rumpus in Congress. Senators and representatives from dairy states will fight the near $600-million cut in dairy income.

The whole idea of flexible farm supports will be under fire. The issue is whether congressmen dare vote for lower prices for their farm voters.

It's a sort of a big vs. little farmer issue. High supports require a tight control of production. And harsh cutbacks in production hit hardest at big farm operations as against the small, family farmer.

—•—

Patronage forced the Agriculture Dept. shake-up. Those let out weren't all hold-over Democrats. Some were appointees of Secretary Benson. The big complaint against them was that they were too slow in replacing Democrats under them with Republicans. You can expect changes of this kind more and more as the political season warms. One of the biggest gripes of local GOP politicians is that Washington isn't opening up enough jobs for the party faithful. Every precinct boss wants a man in Washington.

—•—

Plans to dispose of some farm surpluses abroad now are taking shape. The Foreign Operations Administration (FOA) is working with 14 nations on projects that could be supported by farm surpluses (page 149).

Some of them involve relief—food for famine areas.

Some involve international politics—cutting into Soviet-bloc exports to free world nations, to reduce Communist markets.

There's to be no dumping in competition with non-Communist producers. Dumping would invite new restrictions against U. S. products.

—•—

Congress is cool toward giving atom information to our allies. Plans of Eisenhower to share our knowledge of weapons use with NATO will be balked. This won't prevent sending A-weapons to our own troops, though.

Industrial development of nuclear power has a good chance. Attitude in Congress is that if private capital will take this on, then it should. Opposition is from public power and labor groups, which want government power. Indications are Congress will favor private power.

Federal-local partnership in hydro projects is getting support in Congress. This is an Eisenhower policy, under which Washington might take on costs of flood control and navigation if local governments would back the costs for development of power they need.

—•—

Indo-China confronts the U. S. with a tough choice. The French (page 146) aren't doing too well in that eight-year war, and they would like to give it up. But if they pull out, Southeast Asia may well be lost to the Communists. We are trying to avoid direct involvement in what could be another Korea. But direct intervention is the only choice, some U. S. officials argue, even if Red China stays out. It's the hot spot today.

—•—

Are we underestimating Russia's strength? A continuing string of wrong guesses makes it look as if we might be. Russia couldn't have the atom bomb, but it had it. The Pentagon scoffed at reports of the Mig-15, until the Mig hit us in Korea. The latest in the series of Red surprises are pictures, turned up by McGraw-Hill's Aviation Week, of new Soviet bombers.

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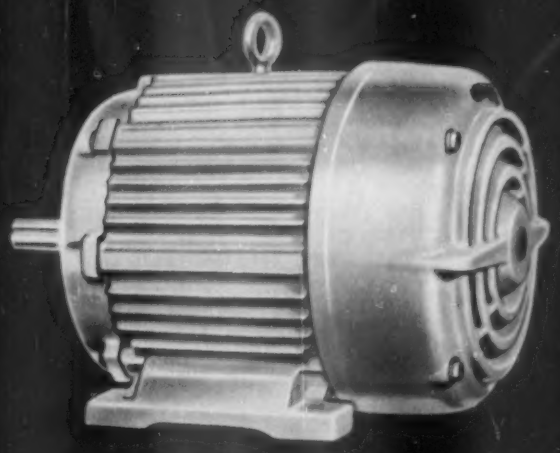

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Here is complete utilization of more than 50 years of motor engineering and development—the new L.A. line of electric motors. More than just a "face-lifting" to meet the new NEMA standards, these motors are entirely new through and through—with such features as new modern styling . . . improved ventilation . . . greater motor protection . . . new conduit box arrangement . . . new bearing construction . . . and more versatile mounting.

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TV: Rainbow's End Is Still Far Off

● **Revenues are booming, but station profits are hard to come by, and competition is getting tougher.**

● **Industry diagnosis is "growing pains"—TV has reached a point where growth naturally slows down.**

● **UHF is the industry's problem child; it still has conversion cost and technical bugs to lick.**

You hear a lot of moaning in the television industry nowadays. Prophets of doom point to the 38 applicants for new stations who withdrew from the field last year. They cite the three stations that went off the air in 1953. And they talk darkly of more casualties to come. Only last week, Allen B. DuMont Laboratories decided to close down another station, Kansas City's ill-fated ultra-high-frequency KCTY.

The industry, however, diagnoses its complaint as growing pains, not a crisis. Over-all, it expects 1954 to be better than ever. It's talking of total television and broadcasting revenues (including the networks) hitting a whopping $530-million this year—compared to a take somewhere between $448-million and $500-million in 1953. And CBS Television Network has just issued a survey that indicates a huge total of 27.5-million TV sets in use today.

What has happened is that television has found it's a longer road to the rainbow than it had hoped. Profits are hard to come by, at least in the first year of operation. Unofficial estimates are that 1954 profits will run close to the 1953 level. With 356 stations on the air at the end of 1953 and maybe 200 or more to come this year, competition is tougher. The bugs in UHF—where the troubles are acute—have still to be licked.

But all this is a natural part of growing. Television has reached a point where its first spectacular gains are due for a slowdown. From now on, fewer new stations will come on the market; it's likely that there will be more withdrawals, more failures. Revenues will grow more slowly. Even if you take $448-million as the figure for 1953's revenue, that was still 38% ahead of 1952. The best that 1954 promises right now is an 18% gain.

All this, the industry insists, is what you might expect in any adolescent field.

I. Too Young

A study recently released by FCC shows plainly how big a factor age—or youth—is in television's profit picture.

If you go back to 1952, the last year for which all figures are available, you find that most of the well established pre-freeze stations—set up before the FCC's ban on new station construction back in 1948—did all right. Only 14 out of 108 failed to make a profit that year; 17 of them had profits before federal income tax of $1-million or more.

The data for 1953 is skimpier. All that is yet available is a study by FCC of 83 post-freeze stations, established after the ban went off in early 1952—and the data here doesn't go beyond August or September, 1953. Nevertheless, despite the study's limitations, it is valuable to show the direction of the winds—both good and ill.

• **Age Tells**—That study makes plain the correlation between age and profits. Out of those 83 stations—all of them young—only 16 were consistently writing their books in black ink.

Among the profitable stations, the average age in VHF was 8.6 months and in UHF, 6.8 months. The unprofitable ones were mere babies, running from 3.5 months to 5.8 months.

• **Consumer Acceptance**—Time is on the side of television in still another matter. The consumer accepts TV a lot faster than he did a few years ago.

Boni, Watkins & Mounteer, Inc., New York consulting economists, have tabulated the percentage of saturation (homes with TV) one year after a market has opened, and two years after.

Stations that opened back in the dark ages of 1946 and early 1947 took two years to get a market that was 6% saturated. New markets that opened three years later won a 60% saturation in the same time.

II. Too Many

Youth is an ailment that cures itself. The other element that scrambles the picture is the increasing competition.

This began to take its toll even back in 1952. Among the 14 unprofitable pre-freeze stations, nine were located in the two big, seven-station markets: New York and the Los Angeles-Hollywood area. Where the competition was less rugged, the showing was better. Two in four-station communities reported losses; two in three-station areas. Only one station in the two-station areas had a loss.

Naturally, the competition for those juicy markets is bound to be rough. As you might expect, there's a direct correlation between the size of the areas and the stations' profits. Some 36% of the post-freeze stations in markets of over 300,000 were profitable; 19% were profitable in markets of from 100,000 to 300,000, and only 12% had profits in markets of less than 100,000.

What we can expect here, says National Assn. of Radio & Television Broadcasters, is a short period of "economic digestion" in those hotter spots. The net result of this may well be to pull total profits for those areas down below 1953's levels this year.

The post-freeze report adds one significant item to the competitive picture: All eight of the profitable UHF stations up to last August were in cities located at least 50 miles from the nearest VHF station.

• **How Many?**—This raises the question of how many stations the U.S. can support, anyhow. FCC has made provision for some 2,000-plus throughout the country. The industry regards this as a matter of physical possibility, rather than an economic probability. Somewhere around 750 in all is more like it, some broadcasters think.

But all this may never be profitable. For the smaller communities, the answer may well be booster-type operations or community antennas.

• **Network Views**—The networks, for their part, feel there's no glut of stations now. They would like to see, says an American Broadcasting Co. official, a chain of TV stations that works exclusively with one network. As of now, there aren't enough TV stations to serve the networks in this manner.

III. The UHF Problem

By all counts, UHF is the problem child of the industry. It gets along fine when it's the only station that can reach an area. Among the post-freeze stations, just as many UHF's as VHF's showed a profit—and the dollar volume of their revenue was only a shade lower.

It's when UHF tries to crash an established VHF market that it hits a stone wall.

• **Two Strikes**—UHF has two main strikes against it:

RCA's Low-Cost TV Eye for remote supervision of any operation

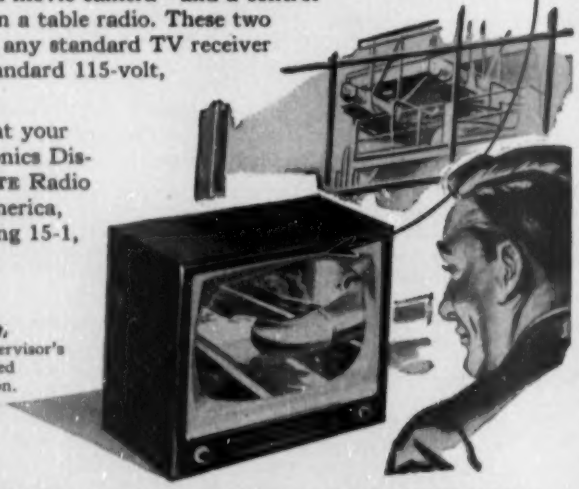
In hard-to-get-at locations, use TV Eye to supervise batch operations, continuous processes, or any other phase of your operation. Low-cost TV Eye camera —using the amazing cigar-sized Vidicon tube—weighs less than five pounds—fits almost anywhere.

HERE'S THE NEW INSTRUMENT that's opening up new thinking in every type of industry . . . RCA's new, low-cost TV Eye.

Wherever an operation is too remote, too dangerous, too tiring for a man to watch—put TV Eye on the job. TV Eye watches meters, liquid levels, conveyor and process operations—any operation that a man can't easily supervise.

COMPACT TV EYE comprises a small camera—about the size of a 16mm movie camera—and a control unit no bigger than a table radio. These two units connect into any standard TV receiver —operate from standard 115-volt, a-c outlet.

CHECK TV EYE at your local RCA Electronics Distributor's, or WRITE Radio Corporation of America, Dept. B26, Building 15-1, Camden, N. J.



Standard television set, in your office or on supervisor's desk, gives clear, detailed picture of your operation.

RCA® **RADIO CORPORATION of AMERICA**
ENGINEERING PRODUCTS DEPARTMENT CAMDEN, N. J.

• The cost of converting VHF sets to UHF.

• The technical bugs that UHF still has to lick.

The real trouble is that VHF got there first with the most. Out of the 27.5-million TV-owning families, only 1.8-million families have UHF, says CBS. As long as the UHF audience stays small, the big advertisers are going to stay away. So the UHF station gets less money to put into the talent that will attract more converts.

It's perfectly possible to convert a VHF set to UHF—if you're willing to spend anywhere from $20 to $80 to do it. If you can't get any other stations, you'll pay your money and like it. You may do the same thing if the VHF programs aren't very good. Otherwise, the consumer will just ignore the UHF stations.

The second big stumbling block is a technical one. UHF signals are weaker than VHF, and the transmitters to get the really big power are still months away from production.

• **Fighting Chance**—None of this means that UHF is a flop. FCC points out that of the 237 grants for UHF, it will be the only frequency in 125 areas. That's true of all Massachusetts, except Boston, for example.

The technical problems will be licked eventually. The question is whether they will be licked before VHF has taken over a community completely. If not, UHF will have to provide something extra special in the way of programing to win the audience, the advertisers, and the networks.

• **Network Boost**—FCC right now is considering a proposal to allow the networks to own two UHF stations in addition to the five VHF stations they may have. This would give UHF a big boost, operators believe. The networks are all for the extension. All of them have taken on UHF affiliates; 34 of the 51 post-freeze UHF stations had some network affiliation last August. Network revenue accounted for around 15% of these stations' total compensation.

• **Color**—One final problem that UHF stations face right now is also common to VHF and all branches of television—color.

Though its impact won't be really felt till 1956, color is hurting this year—by slowing down sales of TV sets. Right now the industry is talking of some 5-million to 5.5-million sets sold this year, down considerably from 1953's estimated 6.4-million. This may mean a slower start for the new markets, slower growth in the old, and fewer profits all around. The cost of installing color equipment will come hard on the smaller stations, too.

For a close-up picture of what this and other problems mean to a television station, turn the page.

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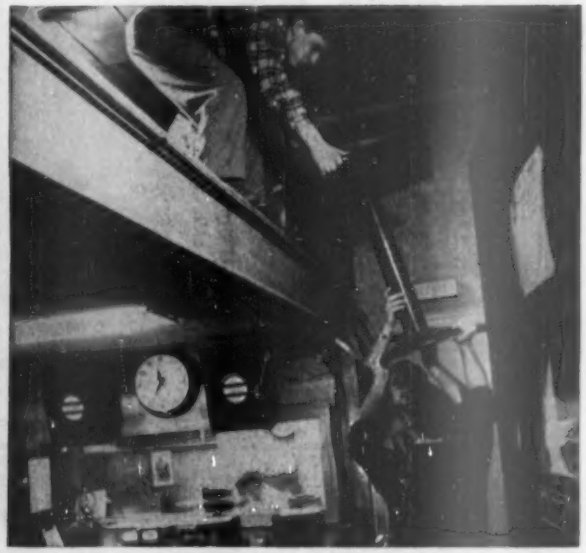
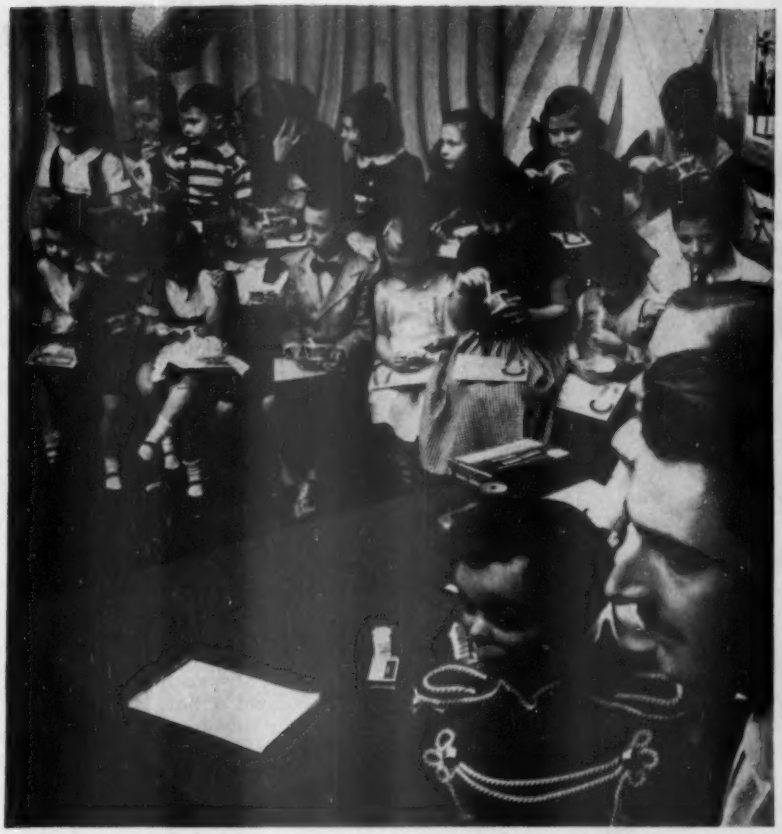
WOOD-TV, in Grand Rapids, Mich., serves a growing area but has to cut corners; secretary Florence Palmer doubles in shows.

LOCAL NEWS WOOD-TV buttonholes Grand Rapids' Mayor Goebel on reelection chances.

Hometown Stuff



BURSTING SEAMS Lacking storage space, WOOD-TV hangs shelves from ceiling . . .



LOCAL SHOWS This is a carnival show featuring ventriloquist Gordon Kibby; but local kids are main attraction because . . .

Builds WOOD-TV

(Story continues on page 46)

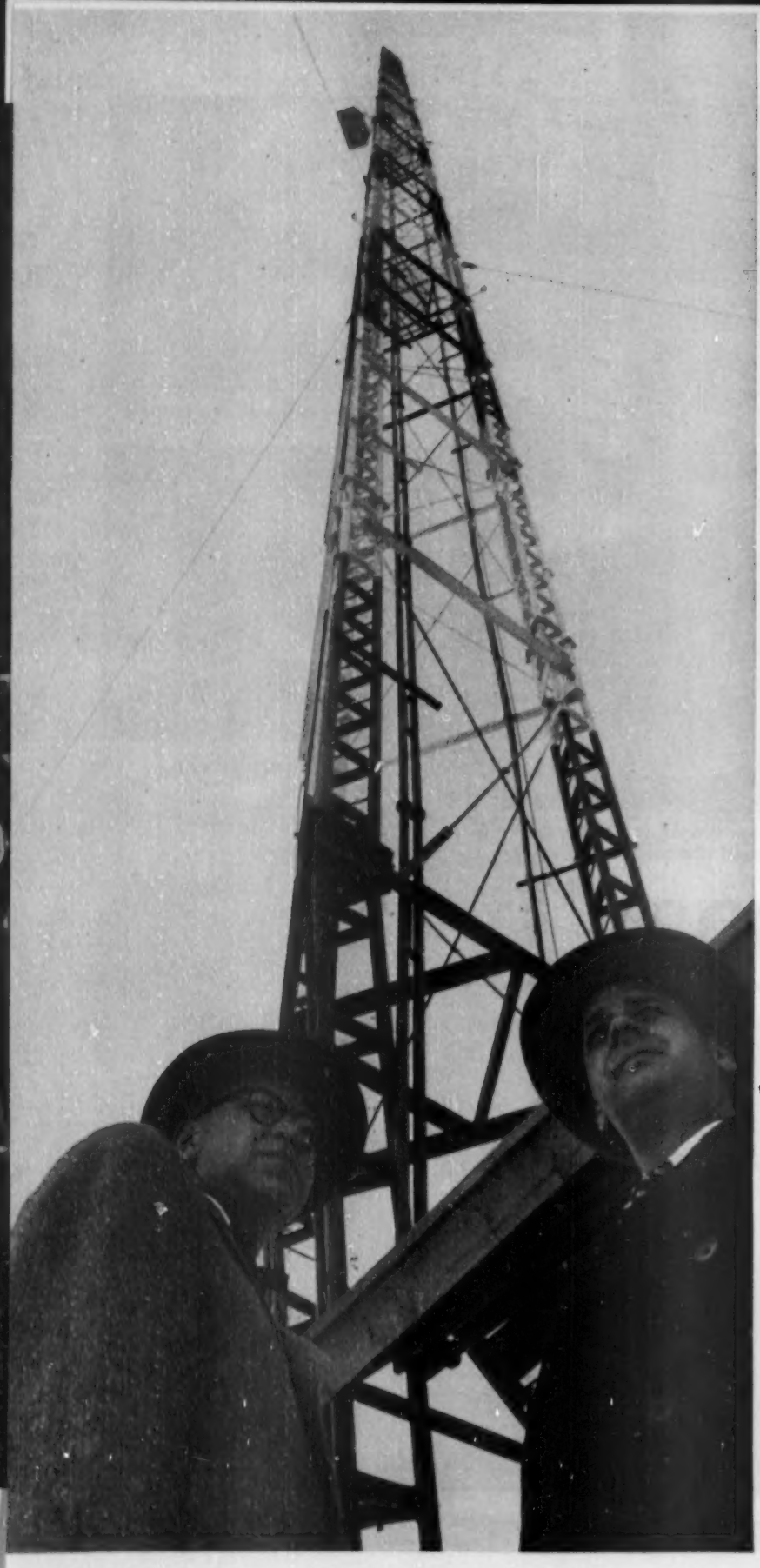
Engineer Lemke works camera...

. . . builds equipment . . .

. . . handles slide projector . . .

. . . to store its props; and its newsroom (above) is just as crowded; besides news staff it houses facsimile machine; even disk jockey has to do his typing here.

. . . and the master control, too.



A Local Force:

Harry M. Bitner, Jr. (right of picture), and Willard Schroeder (left) are in a business that's built on a paradox.

It's easy to show a profit when you start a television station in a medium-sized city, with a minimum of equipment and some engineers who can double in brass as camera-builders or what not—as at WOOD-TV in Grand Rapids, Mich. (pictures, pages 44-45).

Or it's easy to render community service, with such locally based programs as WOOD-TV puts on.

The longer you're in business, though, the harder it is to do both at once.

Take profit: You don't even need a studio or a camera to run a television station—just a film, a projector, and a transmitter. You have maybe a couple of engineers and someone to make the station breaks. You're bound to get enough advertising to make your "nut."

And you'll have an audience of sorts until the second or third go-round with those prewar British movies.

Or take community service: You need a studio (and that means expensive floor space), several cameras, engineers, producers, and everything a metropolitan station needs. You put on quiz shows with local talent, juvenile get-togethers, educational programs, charity drives, and the whole gamut. Your hometowners will love you—and your expenses will eat you up.

• **Doing It**—WOOD-TV is proof that it isn't impossible, though, to fill both functions. The station is a little over two years old. Last year it returned better than 20% on its owners' investment before taxes. It is a solid force in community life.

The formula is one that many other TV stations its size probably are using: Get yourself a loyal audience and be a hometown station. So WOOD-TV probably is typical in many respects.

But it certainly is not typical in many other respects. In the power and range of its signal it is strictly big-time; it's as powerful as the government will allow.

It's located in a city of only 180,000, but serves a 2-million population area.

• **National vs. Local**—It puts on 70 local "live" shows a week, about 20% of its total air time. They bring in nearly 13% of all WOOD-TV revenues.

In its second year of operation, WOOD-TV increased its revenue 36%, while increasing its net before taxes by 150%. Significantly, the largest increase dollarwise was in the category that best certifies to a station's acceptance: spot announcements placed by national advertisers.

A Profit Maker, Too

(Story starts on page 44)

Where WOOD-TV is similar to others is in this: One of the largest single chunks of revenue comes from network billings—it's a National Broadcasting Co. affiliate.

That is a large part of the success formula in the television business. You have a ready-built audience for "name" stars because of the national promotion behind them. Network accounts require little sales or operating expense and few facilities. They could carry your entire operation and give your viewers programs on a par with the rest of the country.

But are network programs the best way to build a hometown audience?

I. Names Make News

WOOD-TV is run by a trio of former newspaper men brought up in the Hearst organization to believe that the best way to get and keep a local audience is to be part of the local scene. They think the same thing applies in television. Their Exhibit No. 1 is WOOD-TV, controlled by Harry M. (Pete) Bitner, Jr. (cover) and his father.

They haven't got all their eggs in WOOD-TV, however. Pete Bitner is vice-president and active head of the corporation that owns WFBM-TV in Indianapolis. The Bitners also have radio stations in Flint, Mich., and Evansville, Ind. That's the nucleus of a pretty good-sized territory for development. It's what 40-year-old Pete Bitner calls their "home territory."

• **Part of the Scene**—At WOOD-TV, the urge to be part of the community has produced a group of local shows that is a microcosm of network programing but features local people.

Take animals, for instance. Practically everybody loves dogs. So WOOD-TV puts its cameras on pups up for adoption from the County Humane Society. On one recent Thursday, 50 of 65 dogs found new homes.

Or take religion. Grand Rapids is a churchgoing town. So WOOD-TV has two programs: The Pastor's Study, with the Rev. Bill Meadows; and Fifteen with Father, with Father "Mike" Beahan (who used to be a WOOD announcer).

Or take education. WOOD-TV has a half-hour weekly show in which the head of the local museum puts on a natural history show.

Or charity. WOOD-TV put on the only "telethon" in western Michigan and raised $32,000 for the local Muscular Dystrophy Assn.

Or safety. Jack Fahlstedt, chief of the Police Accident Prevention Bureau, gathers a group of school children for a quiz on safety on the street.

Or take special events. The predominant nationality group in the Grand Rapids area is Dutch. So when Queen Juliana of the Netherlands visited the city, WOOD-TV borrowed WFBM-TV's Zoomar lens and focused on the balcony of the Pantlind Hotel across the street from the studios for close-ups of the queen. When President Eisenhower once passed through Grand Rapids, WOOD-TV—lacking mobile equipment—trundled studio cameras and equipment to the railroad station.

Or, finally, take news. Local photos made by WOOD-TV's own cameraman are combined with facsimile photos from the International News Service to make an almost entirely visual news program.

• **Philosophy and Profit**—If it all adds up to a kind of weekly newspaper consciousness that names make news, it is a reflection of both Pete Bitner's philosophy of community service, and the imaginative, profit-minded methods of WOOD'S 40-year-old general manager, Willard Schroeder, also a former Hearst man.

• **Slices**—With a station that builds up the local side but also gets a lot of its revenues from national spots and networks, how do the figures actually break down? Here are WOOD-TV's revenue figures for the year ended Nov. 30, 1953:

Source	*Amount received*
Local programs and spot	$ 269,045
National programs and spot	576,214
Network	482,917
Other revenues*	72,228
Total operating revenues	1,400,404
Less reserve for doubtful accounts	46,342
Net operating revenues	1,354,062

** Includes talent and rehearsal charges.*

On the other side of the balance sheet, WOOD-TV's expenses for the same period—the year ended Nov. 30, 1953—break down like this:

Type of expense	*Amount paid*
Program and studio	$230,416
Technical	244,610
Selling	104,570
Administrative and general	121,677
Occupancy	127,722
Total operating expenses	828,996

That left WOOD-TV with an operating profit of $525,066. After deducting interest and other charges of

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TMI Precision Tubing Cuts Your Assembly Costs

Your payroll *and* your delivery schedules will lean way over on the extra profit side when you switch to TMI small diameter cold drawn stainless and alloy tubing. There are two proven reasons for it, reasons why top management in hundreds of leading manufacturing plants like to see Tube Methods Inc. on their Tubing orders: Less machining because of TMI's consistent closer tolerance and less hand-fitting because of TMI's constant quality!

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How Honeywell Customized Temperature Control can help you

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New home of the Daytona Beach Federal Savings and Loan Association, Daytona Beach, Florida. Architects and engineers: Bank Building and Equipment Corporation of America, St. Louis. Heating contractor: D. W. Browning Plumbing and Heating, Daytona Beach, Florida.

Why Honeywell Customized Temperature Control is becoming a building "must".

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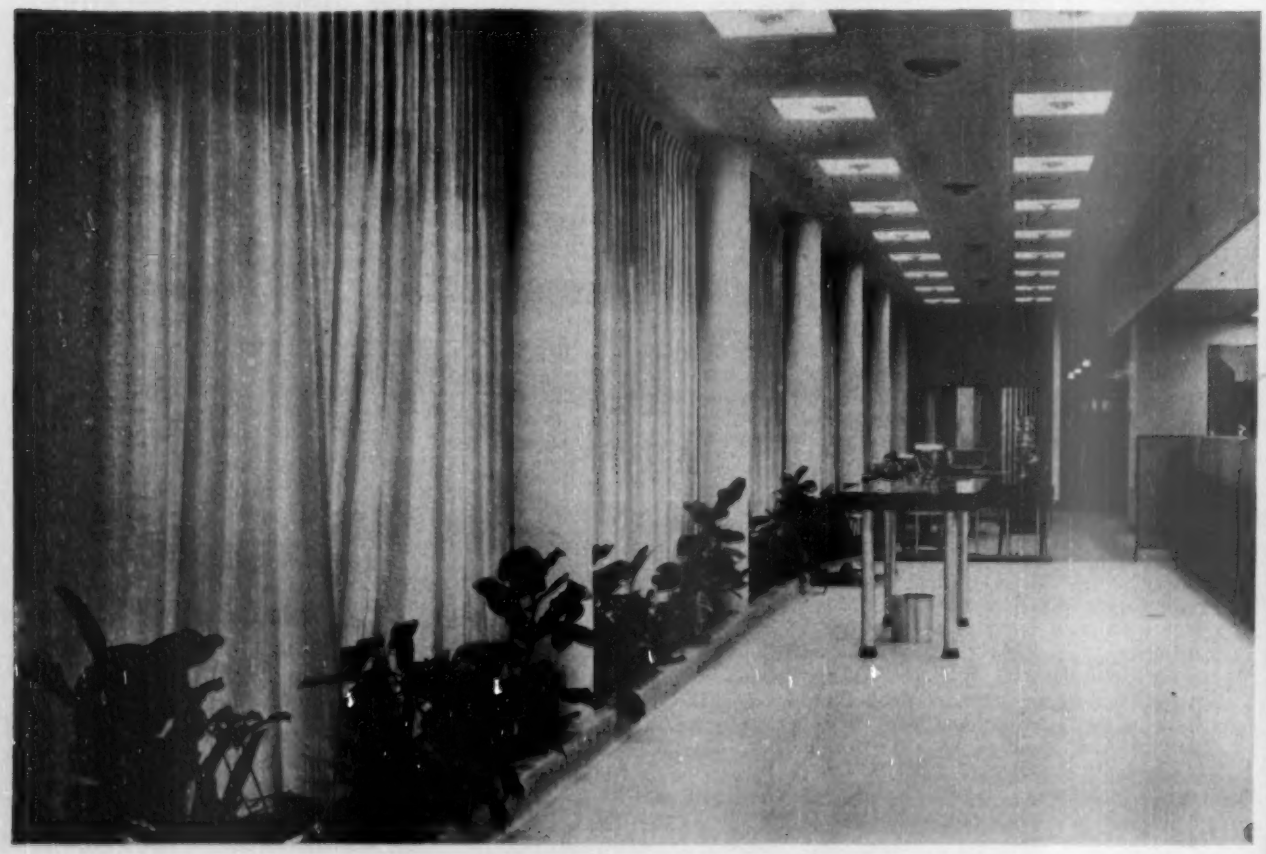
The key word here is "customized." It means that whatever your control requirements, a Honeywell Customized Temperature Control installation *designed to fit the needs of the building and its occupants* is your answer.

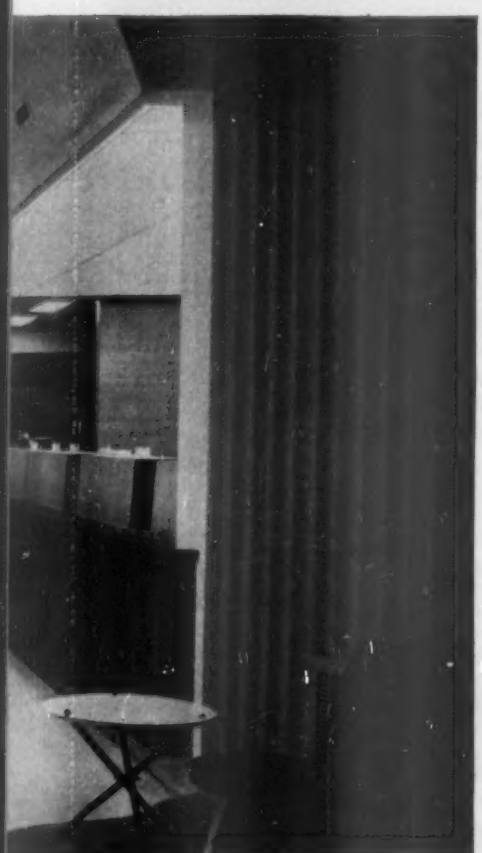
Only Honeywell can provide "customized" control. Because only Honeywell makes all three types of controls—pneumatic, electric and electronic, for heating and cooling, ventilating and humidity.

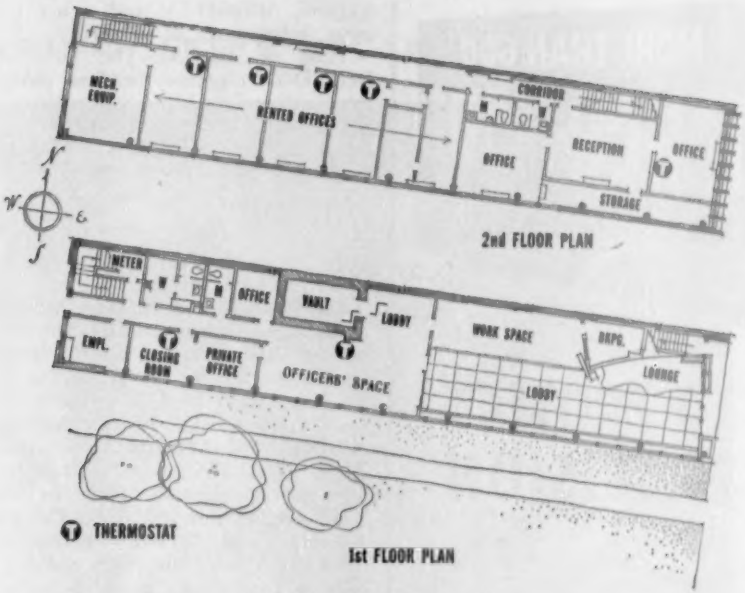
The story, in brief form, of the Honeywell Customized Temperature Control installation in the Daytona Beach Federal Savings and Loan Association Building in Daytona Beach, Florida, is told here. The *techniques* used, applied to your particular problems, can help give you the kind of wonderful "indoor weather" you've always wanted.



This reception room is typical of the modern design of the entire building. Modern design includes "indoor weather" control provided by Honeywell Customized Temperature Control. On the second floor, individual thermostats in each of the office spaces make it possible for tenants to maintain the "indoor weather" at the level *they* prefer.

Thermostats on the main floor guard against overheating by solar radiation through the large exposure of glass which faces south. Main floor thermostats of the Honeywell Customized Temperature Control installation do another job, too: they give the proper degree of heating or cooling in the more enclosed spaces at the rear.





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L. E. Northrup, executive vice-president of the Daytona Beach Federal Savings and Loan Association, says:

"It is our belief that our new building offers the finest service and facilities for miles around. Important in helping us provide just that is our Honeywell Customized Temperature Control installation."

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$33,648, WOOD-TV had a net income, before taxes, of $491,418.

• **Time on the Air**—The bulk of WOOD-TV's income, therefore, comes from national and network revenues. Allocation of time on the air follows about the same proportion. A typical weekday of 16 hours goes like this:

Type of program	*Hours*
Live local	3.5
Film	2.0
Network	10.5

On Saturdays and Sundays because of union rules about overtime, film and network take the whole day (15 hours on Saturday, 12½ on Sunday), except for one hour of live local on Saturday and one live local news show on Sunday.

• **Competition**—WOOD is Grand Rapids' only TV station. But it has some area competition. There are two VHF competitors: WKZO-TV in Kalamazoo and WJIM-TV in Lansing. WOOD-TV says the latter competes only in Lansing, as its signal doesn't come through very clearly in Grand Rapids. There are also two UHF stations—in Lansing and Battle Creek—but WOOD insists it doesn't worry much about them.

II. Building Job

The Bitners set general policy for WOOD-TV and retain veto power over such things as real estate, equipment, investment, accounting methods, sales organization, network affiliation, and network rates. In other areas, general manager Schroeder is on his own.

His has been a building job that is still going on. It offers a fascinating insight into some of the problems you run into when you jump from radio only to radio-and-TV. Radio station WOOD was founded about 30 years ago—by a lumber company, naturally. The Bitners bought it in 1948.

A few years ago, WOOD bought WLAV-TV in Grand Rapids. The station had no camera and filled its time with films only. The Bitners changed the name to WOOD-TV, and it went on the air with Grand Rapids' first live show in October, 1951.

• **Investment**—All in all, the Bitners' capital investment in WOOD-TV comes to roughly $1,967,000 up to now, with more going in for a new building for offices and studios that will bring the total to about $2.3-million. The total breaks down like this:

Category	*Amount*
Purchase of WLAV-TV	$1,365,000
Erection of new transmitter	602,000
New building	300,000-350,000

• **Cutting Corners**—As it made the transition from radio to radio-and-TV, WOOD has fought to keep costs down, improvise, cut corners, and "make do" with what it had. A tiny repair shop builds a large part of necessary equipment. WOOD employees double in brass: Schroeder's secretary, Rosemary Grinage, is also a performer.

WOOD employees are represented by two unions—the American Federation of Radio & Television Artists, and the International Brotherhood of Electrical Workers. All organized employees, of course, get overtime pay. But WOOD is able to cut its "doubling-in-brass" corners through special agreements. WOOD has 42 engineers—a large number for a station of its size. But IBEW has agreed to a classification of "junior engineer." The term covers a man who really acts as a prop hand, sets scenes, and does routine work, but is also a kind of apprentice engineer.

• **Equipment**—In the film and slide projector room at most TV stations, you will find two cameras, one for film and the other for slides. At WOOD-TV, an ingenious system of mirrors permits one camera to pick up images from any of five projectors.

All this helps to account for the financial results—the jump from a net before taxes of $137,353 in the fiscal year ended Nov. 30, 1952, to the $491,418 shown in the 1953 fiscal year.

III. New Course

With these results so far, the Bitners now can afford an expansion program that will relieve the congestion and launch WOOD-TV on a new course as a regional station and color pioneer.

First step was the new transmitter and antenna. A 920-ft. tower has been erected north of Grand Rapids on a hill 800 ft. above sea level.

Next, the Federal Communications Commission permitted WOOD-TV to increase its power on Channel 8 to 316,000 watts video and 158,000 watts audio. That's the maximum allowed, and only a handful of stations in the country—none so small as WOOD-TV—are operating on "superpower." (The television VHF band is split: On Channels 2 to 6, superpower is 100,000 watts video and 50,000 watts audio; from Channel 7 to 13, more power is needed to equal the same "effective radiated power"; that's why WOOD-TV's 316,000-158,000 combination is really no greater in effect than other 100,000-50,000 combinations.)

• **More Capital Outlay**—To obtain its power increases, WOOD-TV had to buy new transmitting equipment—which is promised for delivery in time to put the station in the superpower class by Apr. 1.

Early this month, WOOD broke ground for the new building for offices

FASTEST THING IN FASTENINGS®

TINNERMAN
Speed Nut
SAVINGS STORIES

"EASY does it" with SPEED NUTS®

...cuts assembly time 87%!

Easy Spindrier

What was causing delays in the production of the new Easy Spindrier? Easy engineers recently found out in a hurry. It was the motor mount bracket assembly. A staking operation was creating a decided bottleneck.

Borrowing on their own long-time experience with SPEED NUT brand fasteners—and the help of the Tinnerman field engineer—they hit on a highly successful solution using a special Flat-Type SPEED NUT!

Proof of the success was supplied through a startling 87% saving in production time—and an overall cost savings of 47%!

Little wonder, then, that Easy engineers saw to it that over 60 SPEED NUTS were designed into the new Easy Automatic Washers.

Special self-retaining Flat-Type SPEED NUT snaps easily into existing notch in bracket. Replaces round nut which was staked down, often causing distortion of nut—this meant re-tapping. Also, paint clogged around nut, causing screws to bind. Paint can't clog SPEED NUTS.

Send today for your copy of SPEED NUT "Savings Stories"; write: TINNERMAN PRODUCTS, INC., Department 12, Box 6688, Cleveland 1, Ohio. *In Canada:* Dominion Fasteners Limited, Hamilton, Ontario. *In Great Britain:* Simmonds Aerocessories, Ltd., Treforest, Wales. *In France:* Aerocessoires Simmonds, S. A., 7 rue Henri Barbusse, Levallois (Seine).

TINNERMAN Speed Nuts®

MORE THAN 8000 SHAPES AND SIZES

Which File of Papers Is Yours?

Banish forever soft folders, loose filing and lost and mislaid papers. ACCOBIND—using ACCO fasteners of soft, pliable steel and ACCO folders and binders of fine genuine pressboard.

Simply punch your papers with a standard two hole punch, place them over the prongs of an ACCO fastener in an ACCO folder and you have filing at its finest. You have neatness, accessibility and, first and foremost, security. Remember...*AN ACCO BOUND PAPER IS A SAFE PAPER.*

ACCOBIND folders
ACCOPRESS binders
PIN-PRONG binders
(for marginal multiple punched forms)
ACCO punches
and other filing supplies

ACCO
PRODUCTS, Inc.
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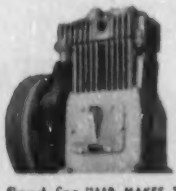
...WITH Quincy COMPRESSORS

An executive can sometimes smell the profit in the air . . . the kind of profit that comes from a lower cost means of operating a hoist, controlling a power shovel or spray-painting your product . . . by letting *compressed air* cut down man hours, eliminate costly methods and speed up output.



Compressed air yields more for your factory operating dollar. And to realize the most for your compressor outlay, look to a Quincy Compressor. It's hardly noticeable in the budget, doesn't take up much floor space, but delivers a steady air supply.

Send for "AIR MAKES THINGS HUM" telling about compressed air applications. Write Dept. W-50.

QUINCY COMPRESSOR CO., Quincy, Illinois
Branch Offices: NEW YORK · PHILADELPHIA
DETROIT · CHICAGO · MINNEAPOLIS · ST. LOUIS
DALLAS · SAN FRANCISCO
Quincy Manufactures Air Compressors Exclusively

and studios for both radio and TV. This will carry its own revenue-producing potential: A mansion on the property has been converted into modern apartments.

• **Grand Design**—The expansion is a prelude to Bitner's and Schroeder's grand design of a regional TV station with color.

With its high antenna and superpower, WOOD-TV expects to reach a 31-county area in southern and western Michigan with a population of 2-million, 350,000 TV sets, and an annual buying income of close to $3-billion.

• **Drawbacks**—That kind of proposal sounds attractive to an advertiser. But it has its drawbacks to Bitner and Schroeder. TV time rates are supposed to be—and occasionally are—based on number of sets reached. So Bitner and Schroeder wrestle with this problem:

At a cost of nearly $1-million, they more than double their set coverage. National advertisers and networks can pay for this coverage. But how much can local advertisers afford? How much are they interested in increased coverage 90 mi. away?

• **Answers**—It's not an insuperable problem, however, and Bitner and Schroeder have some answers.

National rates will go up. But that doesn't mean utter reliance on network programs that squeeze the local shows off the air. There's a lot of "national spot" business available. That means a national advertiser buys time at various stations—generally, but not always, spot announcements.

("Spot" has two meanings in TV—and radio, too. "Spot announcements" are commercials of less than a minute in length scattered between programs or at station breaks. "Spot radio or TV" means programs transcribed or put on film that the advertiser can "spot" geographically in any area he wants.)

In 1953, national spot business at WOOD-TV—both announcements and spot programs—brought in $576,214. That was the station's largest single source of revenue. National spot can actually support local programing when it's in the form of spot announcements—these announcements alone last year brought WOOD-TV $402,482.

• **More Competition**—As WOOD-TV moves into its new 31-county area, it will pick up another VHF competitor in WW-TV in Cadillac, and its high rates may possibly drive a few local advertisers onto the UHF stations. The Bitners plan to increase promotion and upgrade programing.

By a gradual transition from "local" to "regional" programs, Schroeder thinks WOOD-TV can keep its present character. The dog show is sponsored by a local dog food manufacturer. If that company wants to expand its market area, it probably can do it through WOOD-TV—and afford a higher rate. The community programs can be adapted to the area.

IV. Color Added

The emphasis on pioneering and planned, orderly growth reflected in the drive for regional recognition is even more apparent in the color TV situation. WOOD-TV is now receiving the few color telecasts sent out each week by NBC. But there are only four color TV sets in Grand Rapids—all lent to distributors by manufacturers.

WOOD-TV has been color telecasting since Jan. 1. Schroeder keeps the distributors informed on schedules for these telecasts and encourages them to have open house.

There's a reason for the interest he's trying to arouse. The 200,000 sets the color manufacturers have set as this year's target will be sold only in areas where there is color reception and public demand. That means theoretically only New York and other metropolitan centers. But if he can generate enough interest, Schroeder thinks maybe Grand Rapids can get some color sets, too.

• **Cost**—Up to now, the color expenditure has been low—about $35,000 for installing an adapter at the transmitter, and about $5,000 to send engineers to Radio Corp. of America Schools. No additional expense for color is anticipated this year. For 1955-56, Schroeder estimates it will cost WOOD-TV between $75,000 and $150,000, though the field is so new that forecasts are difficult on costs. A "camera chain" (camera and associated equipment) would cost about $125,000 if bought commercially, but by making it at WFBM in Indianapolis, WOOD-TV would save about half that.

• **Regional System**—Some time this year, WFBM-TV will also be a superpower station, with a geographical region as large as WOOD's. Then Pete Bitner hopes their radio stations in Evansville and Flint will join the TV list with superpower, giving the Bitners a tightly knit TV territory.

WFBM was their first station—bought in 1939 by Harry M. Bitner, Sr., former general manager of the Hearst papers—and WFBM, Inc., is the top company in the system. WOOD-TV is owned by Grandwood Broadcasting Co., of which Bitner senior is president and Pete, vice-president. Schroeder has an option on 5% of the stock, and the Bitners hold the rest.

FCC would allow the Bitners to own five TV stations, but they have no plans now for a fifth. If they did, it would have to be in the "home territory" and follow the community pattern.

"We believe there's a responsibility to the public for community service," Pete Bitner says.

Inspection Costs Drop! These three Federal Electricator Gages inspect two diameters, a shoulder distance and overall length of tiny watch parts . . . simultaneously. Signal lights tell when dimensions are off-size. Dial indicators show how much.

Oversized Costs Measurably Reduced!

Cost-cutting programs pay off only when your process, production and quality control engineers use up-to-date methods and equipment. How much are outmoded gages handicapping their progress?

Your costs can be cut seven ways when modern Federal Gages take over:

1. **Reduction** in undersize dimensions and oversize holes which scrap up to 10% of production.
2. **Less rework** on oversize work which hogs as much as 30% machine time in some plants.
3. **Material costs** cut through purchase of smaller-sized stock, made possible by holding work to closer tolerances.
4. **Inspection time** halved when visual indicating gages replace ordinary micrometers, vernier calipers and fixed gages. Even higher savings result when Federal multi-dimensional and sorting gages are used.
5. **Quality control** simplified by gages that warn machine operators before they produce scrap.
6. **Assembly speeded** when visual indicating or automatic sorting catches out-of-tolerance parts formerly overlooked because of human error.
7. **Gaging costs** cut when modified Federal stock gages eliminate need for costly special gage engineering.

Investigate! Catalog 52 shows your production and quality control engineers Federal Gages which help cut costs all along the line. Write for your copy today. Federal Products Corporation, 422 Eddy St., Providence 1, R. I.

Ask **FEDERAL**

FOR ANYTHING IN MODERN GAGES . . .

DIAL INDICATING, AIR, ELECTRIC, OR ELECTRONIC—FOR INSPECTING, MEASURING, SORTING, OR MACHINE SIZE CONTROL.

Accurate Assembly! Here's how a Federal Dial Indicator is used in balancing and adjusting gears at assembly of an automatic pilot.

Full Length Inspection! This Federal Continuous Measuring Gage checks full length diameter of hard rubber tubes as they emerge from centerless grinder. Signal lights show operator when tube diameters are within, over, or under tolerances. This gage can be modified for COMPLETELY AUTOMATIC SORTING.

Accuracy and Output Increased! Here, the new Federal Arnoldair unit is applied to the well known Arnold continuous grinding gage. This makes faster and more positive dial reading. Work is ground to required dimensions more positively, with less human attention.

TIFFANY STANDS
FEATURE SAFETY, STRENGTH
SILENT OPERATION

MODEL "S"
TIFFANY STANDARDS
ASSURE A LIFETIME OF
TROUBLE-FREE SERVICE

MODEL "55"
ON SALE AT
BETTER
DEALERS
EVERYWHERE
Here's the stand that's preferred by office workers and management alike. The many exclusive features make Tiffany unequalled in performance. Literature on request.
TIFFANY STAND CO.
7350 FORSYTH • ST. LOUIS 5, MO

2-chamber melting
is a
COST SAVER

Production of aluminum castings has increased 50%—rejects decreased 33% with a Lindberg-Fisher 2-chamber induction melting furnace at In-Sink-Erator Mfg. Co., Racine, Wisc.
LINDBERG ENGINEERING COMPANY
2450 W. Hubbard Street, Chicago 12, Illinois
LINDBERG
HEAT FOR INDUSTRY
no other organization in the world covers the field so completely

Check on Hardware Sales

Hardware group starts a monthly report on 1,000 stores . . . Cigarette sales down sharply this quarter . . . Schulte's tries a new tack . . . TV auction is the latest promotion gimmick.

Marketing men have a new sales guide. It is a nationwide monthly survey of hardware shopping trends in 1,000 cities conducted by the National Retail Hardware Assn. of Indianapolis.

Every month the association, numbering 23,000 independent retail hardware stores, will mail questionnaires to 1,000 dealers who have volunteered to take part in the survey.

Answers to be filled in by each dealer concern his most active line, comparison of the current month's sales with those of a year earlier, inventory on hand compared to last year, and balance of accounts receivable.

The aim is to have each month's survey completed by the 10th of the following month. Results will then be made available to manufacturers, retailers, and publications. It is felt that it will be especially helpful to the manufacturer by letting him know which items are moving and which are building inventory.

First survey released by the association was for December. It found that retail hardware store sales just topped the boom level of December, 1952, by 0.3%. Best-selling items were the housewife's and handyman's tools—a reflection of the do-it-yourself trend.

•

TV Auctioneering

Texas, prolific source of merchandising gimmicks, has a new one going successfully in Houston. It's TV Auction, a show that displays a variety of goods on which the viewer can bid.

On the air since November, the show has stirred such a big response that a second version has already been launched in San Angelo, Tex. And last week, owner Associated Productions, Inc., announced plans for TV auctions in Dallas, Phoenix, and New Orleans.

• **TV Bidding**—Here's how the auction works. Participating merchants give their customers one coupon called a TV Buck for every real dollar they spend in the store up to $100. In turn the customers use these TV Bucks to bid on merchandise auctioned off each Saturday afternoon on a 30-minute show over KPRC radio and TV.

Bill Bryan, the TV auctioneer, describes each item—refrigerators, TV sets, freezers, washing machines, and the like. When a viewer sees something he wants, he mails in a postcard the same day, giving the item and the amount of his bid. The bids have gone from five TV Bucks up to 2,000.

• **Members**—Over 500 stores in Houston are in the auction plan.

To join the Auction, a retail store has to pay an initial fee to Associated Productions, which supplies all the goods that are put up. Operation funds for the show also come from the merchants, who pay a certain amount per 1,000 TV Bucks.

•

New Drug Chain

The management of the D. A. Schulte, Inc., cigar store chain has finally decided that the business is a dead duck. Instead of making any further efforts to revive the cigar store, Schulte's has decided to go into a new line—drugstores.

Ever since the war, Schulte's has tried one thing after another to make its corner store locations pay off. It has added soft goods and drug items. It even toyed with the idea of installing lunch counters (BW—Aug.29'53,p62). But each idea either fell through or didn't work. Schulte's showed a net loss of $457,936 in the last fiscal year.

• **Moving Out**—The first step in the new program was the purchase of Stineway Drug Co. (BW—Aug.29'53,p62), followed last week by stockholder approval of the purchase of the Ford Hopkins Co. These midwestern chains have been combined with Schulte to form the new General Stores Corp. (BW—Jan.23'54,p54). According to N. C. Earl, Jr., president, the acquisition of Stineway and Hopkins, which had a combined 1953 volume of $25-million, will put General Stores on the profit side of the ledger.

Now General is out to acquire additional regional drug chains of the family-owned and partnership types. Except in the case of Stineway, the pattern will be this: General will make a down payment, then pay off the rest over a period of years out of earnings.

Waddill Catchings, a prominent figure in past merger operations (McKesson-Robbins, National Dairy Products Corp., and others), was made chairman of General's board. Catchings is currently negotiating the purchase of eight additional drug chains.

Once in the fold, each chain will become a subsidiary and buy through General Stores, but will retain its own name.

• **New Lines**—General's accent will be on the pharmaceutical end of the business. It feels other established drug chains have neglected this profit-making department.

And as to the future of the Schulte cigar stores, General will continue operating the money-makers, eventually dump the others.

•

Cigarette Tally

Cigarette sales for the first quarter of 1954 are going to look a good deal worse than they really are.

Tobacco experts this week were looking for tax-paid withdrawals from warehouses of about 88-billion or 90-billion cigarettes for the three months. That would be a thumping 10% to 12% below last year's first-quarter tally.

But the blame must not be laid at the door of the lung cancer scare. The trouble lies in the fact that the 1953 first quarter was abnormally high, for these reasons: (1) Retailers were buying to beat price increases, and (2) the nationwide distribution of the new king-size Philip Morris was filling pipelines.

So tax-paid withdrawals showed a total of 99-billion cigarettes sold, when the normal amount would have been about 91-billion or 92-billion. Observers knock off another 3% or 4% for the drop in smoking noted at the end of 1953 to get the 88-billion or so cigarettes as the estimate for this quarter.

MARKETING BRIEFS

Charge-it-to-the-bank plan (BW—Apr. 11'53,p43) folded in Rochester, N. Y. The Security Trust Co. called off its plan for handling charge accounts of retail customers for stores after a 16-month try. Observers say the bank couldn't convince the major stores that its fee—5% of billings—was worth it.

•

An easy-to-move TV set that can be carried from room to room is being distributed by the Crosley Division of Avco Mfg. Corp. By using dual-purpose tubes, Crosley has reduced the cabinet size, and claims its 17-in. screen model Super V is lighter than standard 17-inchers. Priced at $139.95, it's a bid for the second-set market.

•

A survey by American Druggist reports that 6,994 drugstores, or one out of seven, are now self-service. That's a 59% increase over the 4,368 stores that had self-service in early 1953.

How Clark's
EXPERIMENTAL
MODEL X-70
helps improve your own fork trucks

Like the famous experimental passenger car "Le Sabre," Clark's "Fork Truck of the Future" will probably never appear intact in a production model. But like the mass-producing giants of the automobile industry, Clark Equipment has utilized its experimental model X-70 to improve the fork trucks which it mass-produces.

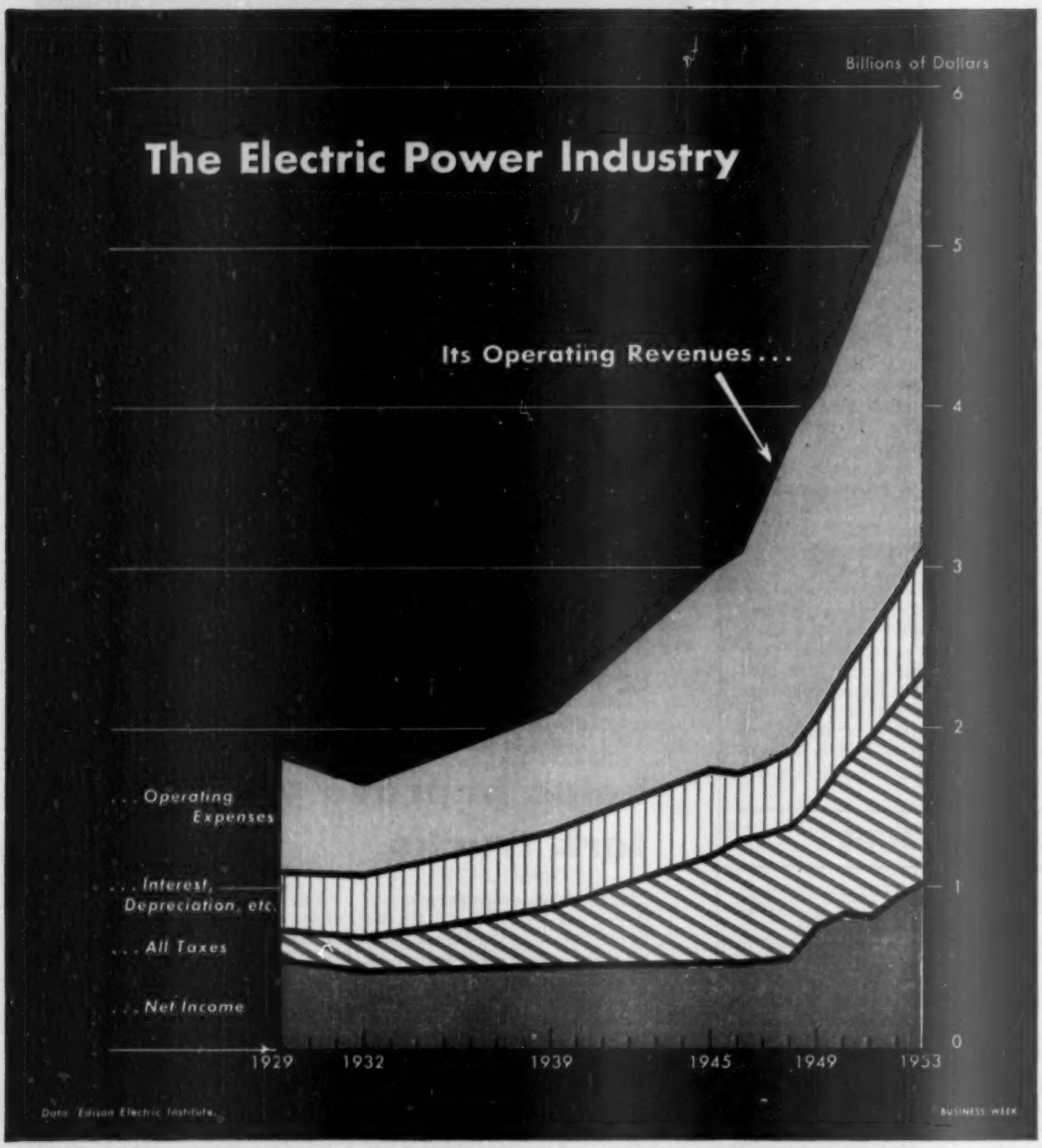
For example, take the frame of a fork truck. The X-70's frame sides between front and rear wheels are turned under to form an oil reservoir on one side and a gas tank on the other. This makes for a lighter, stronger frame. The counterweight is more than streamlined decoration: it's hung on the frame for fast, easy removal. The counterbalanced hood lifts up in one piece for complete accessibility to the engine.

All of these design improvements are already being incorporated into many CLARK production models. Which explains how Clark's X-70 is helping to improve your own trucks.

MORAL: Improvement costs money. As a mass-producer of industrial trucks, CLARK is willing to bear the cost of exhaustive experimental work. That's why it's good business to buy CLARK EQUIPMENT.

CLARK EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
BATTLE CREEK 42, MICHIGAN



Even Inflation Fails to Shake It

Last week, two of the top investment counseling services came up with identical pieces of advice: Buy electric power stocks. Said Standard & Poor's Outlook (Feb. 8, 1954): "At a time when trained economists, let alone the average investor, find it difficult to peer very far into the future, electric power stocks suggest themselves for special consideration in investment planning."

On the same day, Moody's Stock Survey said: "We recommend selected electric power stocks for purchase at this time. . . . Most investors should be holding some . . . [and] . . . if you don't already . . . [now] . . . is a good time [for you] to acquire some. . . ."

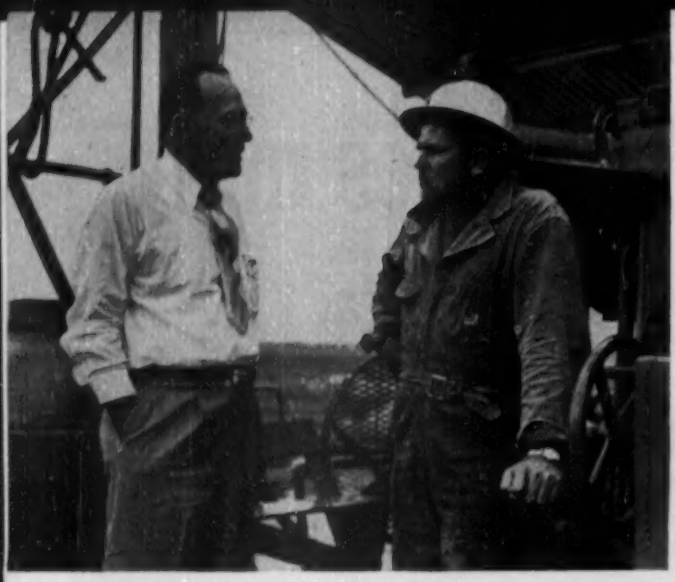
• **Consistent**—Most leading counselors have been touting the electric power shares for quite a while (BW—Oct.11 '52,p144). So far, investors who have tagged along with the advice have had nothing to squawk about. As a group, electric power shares have consistently

The COMPANION reaches more married women 18 to 35 than any other women's magazine*

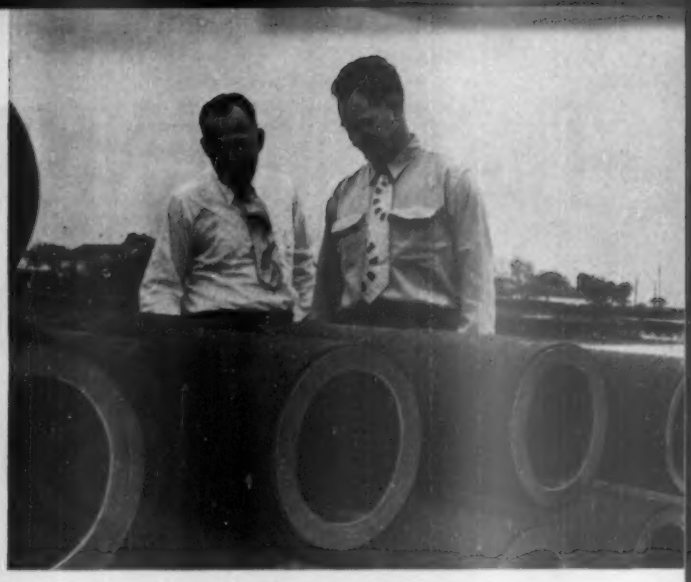
These women are your best customers . . . they're buying more now than they ever have or ever will again . . . and they depend on the COMPANION! To find out how important they are to you, get in touch with your COMPANION representative!

*SOURCE: From the latest Starch Consumer Magazine report.

Concentrate on the best buying years of a woman's life with COMPANION



IN TEXAS George Novak, sales engineer (left), talks with a driller about field handling of casing and drill pipe.



Here he discusses a new product development with the director of an oil company drilling engineering division.

In The Oil Fields . . .

It's Extra Service That Counts

You play for big stakes in the oil fields. Every drilling operation is a gamble and you are continually striving to reduce the odds.

That's where Pittsburgh Steel's sales engineers fit in. If you drill for and produce oil, the sales engineer's job is to make sure that you are satisfied and happy with every length of Pittsburgh drill pipe, casing or tubing you receive and that it gives you the kind of service you want in the field.

In one day the sales engineer's range of assignments may include: (1) Computing specifications and designing oil strings for independent operators who do not have engineering staffs, (2) taking orders, (3) making sure the operator is satisfied that shipments meet specifications, (4) assisting field shops in the proper threading

IN OKLAHOMA Sales Engineer Jewel Smith (right) checks threading to make sure that . . .

Pittsburgh Steel products will perform satisfactorily for all types of drilling and production.

(advertisement)

of tubular material and application of necessary field equipment, (5) schooling field crews in proper handling and installation, and (6) observing the running of casing and tubing to insure proper performance.

Beyond that, they frequently will be working with other engineers and drillers on the technicalities of a planned drilling operation. Often they are busy developing new products or introducing new products to drilling contractors and engineers.

George Novak (above) from Houston, for example, helped to develop a new tubing for use on high pressure completion jobs. He and an engineer for an oil company jointly worked out the specifications for tubing capable of withstanding excessive working pressures. That tubing put the oil company, and eventually the industry, years ahead in development. For Novak, it was one more in a long and impressive string of oil field "firsts" he has worked on.

IN CALIFORNIA On arrival of a shipment of casing, Sales Engineer John Wais Jr. (center above) works with inspecting crews to be sure they are satisfied. The same day finds him (below) discussing technical problems with a drilling superintendent and drilling engineer for an oil firm.

● **It has to be right**—Recently John Wais Jr. (right) from Los Angeles, has been working with operators who are using Pittsburgh's lightweight, high-strength seamless drill tubing to reduce drill pipe weight. Field requirements and mill problems have to be coordinated to work out the most suitable dimensions and designs. Wais goes over these requirements with customers, makes suggestions on the design and explains what can be done by the mill to obtain the best product for these requirements.

Jewel Smith (left) from Tulsa, is busy giving the same kind of service, ranging over thousands of miles, to visit oil men on the job. This 215 pound, six-foot-three, former oil field "roughneck" can't walk past a quantity of stored Pittsburgh Steel products—already sold and delivered—without getting measuring devices out of his car and testing to make sure the customer is getting what he asked for.

Sales engineers like Novak, Wais and Smith are the liaison men between Pittsburgh Steel's steel mills and the oil men's field operation. If you have a problem that involves the use of drill pipe, casing, or tubing, or other operational problems—these men, plus the sales staff and the mill men at Pittsburgh Steel—are ready to do what they can to help you arrive at the right answer.

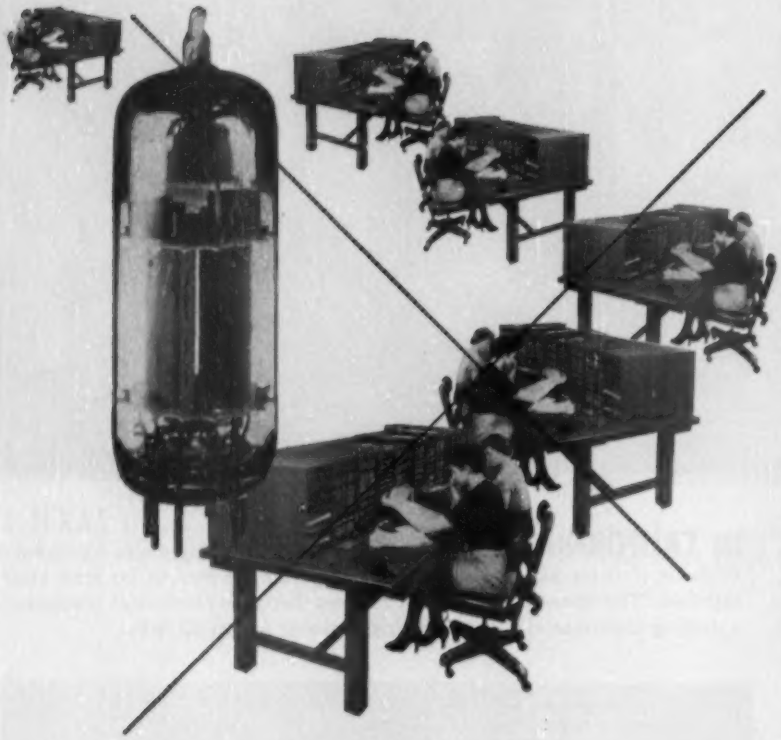
And you can count on them to follow through to see that performance on the job is up to your expectations. They know that, after all, it's the follow-through that counts most in the oil fields.

"Everything New But The Name"

Pittsburgh Steel Company

Grant Building • Pittsburgh 30, Pa.

Sales Offices in Principal Cities Throughout the Country



Telecomputing makes possible

Automatic Inventory Control

A new system of high-speed inventory control able to perform the work of from 50 to more than 500 persons has been designed by Telecomputing Corporation. Not an electronic "brain," the system applies *practical electronics* to the growing Business problem of mass record-handling.

Flexibility is a major advantage of the system. It can be engineered to most types of big volume inventory problems, including those caused by large numbers of stores or branches.

The system is designed to keep perpetual inventory; permit up to 36,000 entries per hour; make basic decisions; summarize and print up-to-date reports such as Receipts, Purchase Orders, Outstanding Orders, Sales by classification, color and size, Sales Projections, Stock, etc.

While the final cost depends on the control problem for which it is produced, most firms able to use this type of system could amortize its cost in approximately two years.

Telecomputing invites inquiries from firms with major inventory control problems.

Turn hours into minutes with Telecomputing.

TELECOMPUTING CORPORATION

BURBANK, CALIFORNIA • WASHINGTON, D.C.

been the strongest performers in the nervous markets of recent years.

Early this week, Standard & Poor's daily utility stock index was 19.6% above its 1951 close. Indeed, even the 1953 low of the index stood 4% above the end of 1951.

By comparison, the companion index for industrials at one time last year fell 6.3% below its 1951 yearend mark; at the opening this week it was up only 8.3% above that benchmark. And during the same period S&P's rail index did only slightly better.

Several factors have contributed to the showing of the electric utilities. Perhaps the most important is the sustained growth power that the industry has demonstrated ever since it entered the economic world 70 years ago. Since then, privately owned utilities have grown to be the nation's third largest industry. And the trade continues to be one of the fastest-growing segments of the economy. Last year, it made this showing:

Power production increased for the eighth straight year. Preliminary estimates put the total at 360-billion kwh., about 10% above 1952.

Gross revenues went through the roof for the 15th straight time, going well above $5.9-billion. That's $500-million, or more than 9%, better than the previous year.

Net income hit a new high of $1,045,000,000. This first flight above the billion mark added $89-million, or 9.2%, to 1952's previous high mark.

Obviously, these recent fine showings are a big part in the popularity of the electric power shares. But there's an historic angle too. The utility stocks are no feast-or-famine thing; they are traditional defensive favorites of smart money when the economic weather clabbers up. Bitter experience has taught these wise men that in most uncertain periods the electric utilities will outperform the average industrial or rail blue chip in stability of revenues, earnings, and dividends.

• **Slump**—The defensive stands haven't been limited to heartbreaking business breaks such as 1929-1932 and 1937-1938. In fact, the 1949 slump provides a recent example, as pointed out at a recent meeting of the New York Security Analysts by Walter H. Sammis, president of Ohio Edison Co. and the Edison Electric Institute.

During the slump, the index of manufacturers fell 15%, while the electric companies were enjoying a 7.6% rise in gross revenues and an almost 15% rise in net.

This was no paradox. It's quite normal for deflation to help utility earnings. The trade's rates are fixed and can't be changed quickly. So, when deflationary factors cause other costs to drop, the utility profit margin tends to

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1

$7,500 SAVED ON INITIAL COST

A special application of two Delta 17" Drill Presses saved Lewyt Corp. of Brooklyn, N.Y., $7,500 and 15 months waiting time for a much needed automatic drilling and threading machine.

2

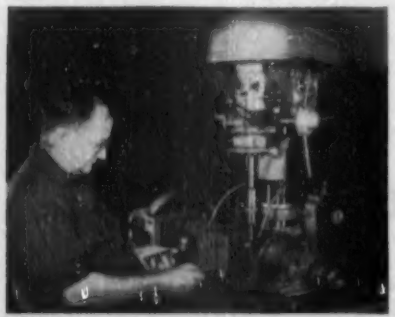
$24,000 SAVED ON LABOR COST

Copeland Refrigeration Corporation of Sidney, Ohio, saved $24,000 the first year in direct labor cost when a production problem was solved through a special Delta Drill Press set up that replaced a $16,000 radial drill.

3

MATERIAL HANDLING COSTS SLASHED

Sangamo Electric Company, Springfield, Illinois, eliminated costly trucking and handling through use of Delta sectional table drill press set ups, with operator moving from one machine to another.



4

PRODUCTION TIME CUT TWO-THIRDS

When engineers of Scully-Jones & Company, Chicago, Illinois, developed a special Delta Drill Press set up to cut tangs, production time was cut two-thirds over previous method of performing same operation.

Four Basic Problems: ONE SENSIBLE ANSWER

(Rockwell-built DELTA Power Tools can be *your* answer to rising costs, too!)

If your profits are being squeezed between rising costs and stiffening competition, do what other progressive businessmen are doing. Use low-cost Delta Power Tools to supplement—and sometimes replace—heavy, expensive conventional machine tools.

Rockwell-built Delta Power Tools make possible big savings in labor, time, and material handling costs because they are so easy to move into and out of production lines, and set up in special combinations. They work to extremely close tolerances, and *stay* accurate, require a minimum of maintenance. Parts are quickly available. And Delta Power Tools are so inexpensive that they make money for their owners *even when standing idle.*

The growing trend toward low-cost, portable, accurate Delta Power Tools amounts to virtually a "new industrial revolution"—a new kind of production thinking that is cutting costs in plant after plant. Your Delta dealer can help you cut *your* costs, too—he's listed in the classified pages of your phone book under "TOOLS" or "MACHINERY." *Delta Power Tool Division, Rockwell Manufacturing Co., 540B N. Lexington Ave., Pittsburgh 8, Pa.*

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DELTA QUALITY MAKES THE DIFFERENCE

widen. Moreover, when power sales drop in a time of general business decline, the loss is usually felt first in the trade's low-rate, low-profit industrial contracts.

That last is an important factor. Residential and commercial sales are only 46% of the trade's total output in kilowatt hours, but they account for two-thirds of revenues. And their importance has been soaring in the postwar period due to the increased use of appliances and gadgets. Average residential consumption last year was around 2,355 kwh., about double the figure nine years before.

• **Inflation**—Every coin has two sides. You might think that the very factors that make the electric utilities fairly depression-proof would have a reverse effect when inflation pushes up operating costs. Still, the utilities didn't do too badly in the inflated postwar years, as the chart on page 56 shows. Gross revenues skyrocketed and net held firm, despite the trade's regulated status. Earnings failed to rise in only one year, despite costs and a tax load that last year took 22.4¢ of each revenue dollar. Actually, since 1945 the 91% rise in net looks fine when stacked up against the 97% jump in gross.

Management's faith in the future played the biggest part in this encouraging departure from the historic pattern. Since V-J Day, the industry has been putting something like $3-billion a year in new facilities, and the expansion program is still far from complete—1954 is scheduled at least to maintain the $3-billion rate.

Increased use of new equipment has helped immeasurably in keeping costs in line. Today, a modern 100,000-kw. plant can be run with 20% to 30% fewer workers than a comparable plant 20 years ago. There are fuel savings, too. It is estimated that up to date generating facilities burn only ¾ lb. of coal per kwh., compared with an average of 1.1 lb. in 1952, and up to 2 lb. plus for equipment built in the late 1920s.

• **Rate Rises**—The depression-proof quality of the utilities has also been aided by a more practical approach to rates adopted by both their own management and the state regulatory bodies. Government has shown increased awareness that the trade needs higher rates to offset rising costs and to attract the enormous amounts of capital needed to finance expansion. Management, for its part, has shown increased willingness, and aggressiveness, to ask for boosts. Between the end of the war and the start of 1954, companies filed more than 400 applications for higher rates, and were granted 362 of them.

Not everything has been peaches and cream for the utilities in the postwar world. Some companies have seen their earnings-per-share diluted by the sales

THE DYNAMICS OF BUSINESS GROWTH

Live vigorously, restlessly!

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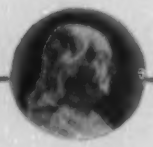
Leading manufacturers of home workshop tools, pumps, air-moving products, woodworking machinery and garbage disposal units credit Franklin engineering coordination with product sales gains as well as cost reductions. If you are thinking of tomorrow's market for your product, write today for the Franklin approach.



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of new stock that had to be made to help finance expansion. Last year there were sales of $760-million of new common and preferred shares. The year before the figure was $637-million.

The worst of the dilution may be over, though. In 1952, dividends were raised by 36% of the utility commons listed on the Big Board; last year 55% were able to boost the ante.

FINANCE BRIEFS

Class I railroads had a net income of $875-million last year. Though this represents a gain of $39-million over 1952, railroad men aren't cheered. They point gloomily to the last four months of the year, when net income declined steadily. The four-month total was $304-million, 24.6% under that of the same period in 1952.

•

Twentieth Century-Fox Film Corp. has told its stockholders that it thinks some of the dividends paid from 1950 through 1952 weren't subject to federal income tax. Dividend payments in those years exceeded earnings, it points out; hence, part of the payments represented a return of capital. The company paid 50¢ a share in each quarter of 1950 and 1951, and paid two 50¢ and two 25¢ dividends in 1952. It feels that roughly 43.7% of the 1950 payment, 56% of the 1951 payments, all of the 50¢ payments in 1952, and 15.7% of the 25¢ payments in 1952 aren't taxable.

•

A pension fund represented by Bankers Trust Co. of New York has bought the land under a $2¾-million store of F. W. Woolworth Co. on New York's Fifth Avenue. When Woolworth's lease expires in 1979, the property goes to the fund.

•

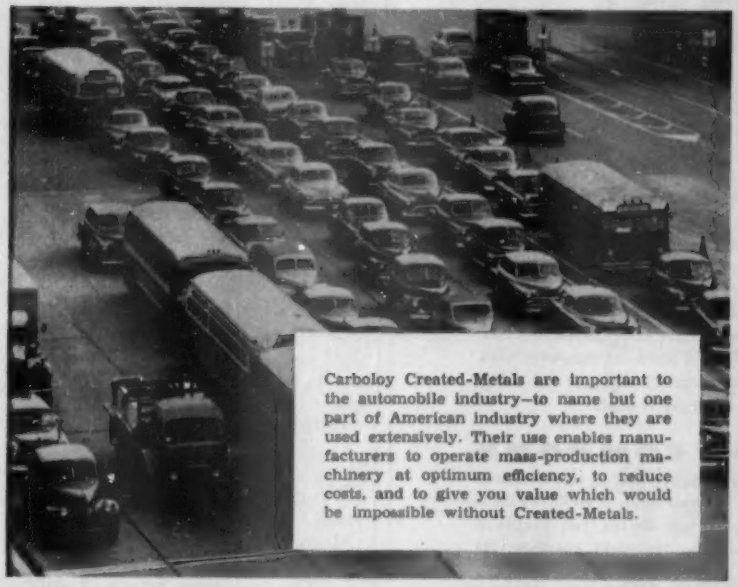
Seiberling Rubber Co. directors last week voted a dividend of 10¢ a share. Stockholders compared this with 25¢ quarterly paid last year. J. P. Seiberling, president, explains that net profits should stay on 1953's level this year, but that expansion will take a lot of working capital.

•

Twenty-year record: John Hancock Mutual Life Insurance Co.'s $447-million of new investments made in 1953 yielded an average gross return of almost 4.3%. This was the best the company had done on new investments in 20 years. In 1945, the pretax rate on new investments hit a low of under 2.9%. The rate of interest on all the company's invested funds last year—after all investment expenses but before federal taxes—was just under 3.3%.

Carboloy Created-Metals are answering many design, production and cost problems

Here are typical case histories—representative of the wide range of benefits Carboloy Created-Metals are bringing to industry



Carboloy Created-Metals are important to the automobile industry—to name but one part of American industry where they are used extensively. Their use enables manufacturers to operate mass-production machinery at optimum efficiency, to reduce costs, and to give you value which would be impossible without Created-Metals.

In production, Carboloy Created-Metals are helping cut costs and increase output. *In product design,* Carboloy Created-Metals are improving performance and durability – ranging from pins to automobiles. *Your problem* may involve radically new factors. Or, it may be similar to problems Created-Metals have solved during the last 25 years. Whatever it may be, Carboloy engineers are ready to provide highly specialized assistance, through the Carboloy Engineering Appraisal Service. Write for details of how this service can assist you to benefit fully from applications of Created-Metals.

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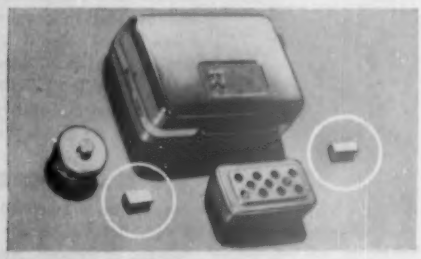
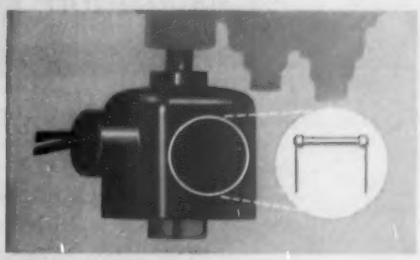
Learn how many industries are applying Created-Metals to improve design, increase production, lower costs. Write on your company letterhead, for this brochure—"Changing the Shape of the Future with Carboloy Created-Metals." Carboloy Department of General Electric Company, 11183 E. 8 Mile Ave., Detroit 32, Michigan.

CEMENTED CARBIDES—New Carboloy Cemented Carbide Grade 370 increases production up to 30% on heavy-duty steel-cutting jobs . . . cuts more steel per minute, with longer tool life, than any other carbide. On this interrupted cut, on high-carbon steel, at 80 F.P.M., with a .024" feed and a ½" depth of cut, tool life was increased 50%.



PERMANENT MAGNETS – Tiny Alnico Magnets, in this all-transistor hearing aid, replaced electromagnets, eliminated an input transformer, and failures due to humidity. Permanent magnets can improve performance, reduce size and weight in controls, motors, instruments, switches.

HEVIMET – In the boring bar shown, a piece of Hevimet "floats" in the bar's free end, eliminates vibration chatter. 50% heavier than lead, Hevimet provides maximum weight in minimum space. Also used as a radioactive shield.



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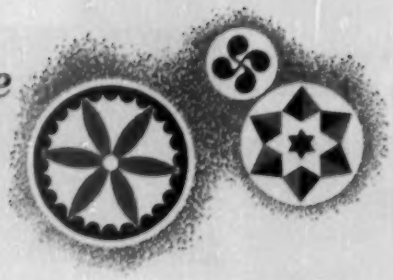

In Pennsylvania Dutch country, the hex sign on the barn is mighty important. The farmer has confidence in its power to protect against evil. In the business world, customers believe in, and rely on, the name of the manufacturer. For instance—to people in metalworking, woodworking, rubber and plastics, the R. D. Wood name is a sign of real value in hydraulic presses . . . good presses that turn a profit for them year after year. To you as a buying influence, the 150-year-old Wood name can mean a lot, too. Economy and efficiency in production, for one thing. If you like, we'll send you a descriptive catalog.

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AMERICAN MANAGEMENT ASSOCIATION

"101 Ranch" Now

That's Merrill Lynch's latest nickname as biggest brokerage gets more partners. They're still bullish.

Back in the 1940s "We, the People" was Wall Street's nickname for the world's biggest brokerage house—Merrill Lynch, Pierce, Fenner & Beane. After all, it had almost as many partners as New York's Chase National Bank had vice-presidents.

Later, the trade called it "The Thundering Herd"—perhaps because its partners included more than a working majority of Wall Street bulls.

Now there's a new nickname: "101 Ranch."

The new label derives from the fact that in 1953 the number of general and limited partners rose to 101. Never before in American finance had a commission house boasted 100 partners or more. In 1952, Merrill Lynch had 94.

• **Still Bullish**—Also, the name, "101 Ranch," reminds one that Merrill Lynch is still a habitat for bulls. None of them is a bigger booster of America and American business than Charles E. Merrill, directing partner, and Winthrop H. Smith, managing partner.

"The long-term future of American business has never been brighter," they say jointly in the firm's 1953 annual report issued last week.

"In just six years we'll probably have 15-million more persons in the United States," they add. "This will mean more houses, more food, more automobiles, more refrigerators, more of everything. . . ."

To grow, there must be a flow of capital. Merrill and Smith hope something will be done in Washington to lift "the restrictive tax penalties on capital investment" that cut the "incentive for man to risk his surplus funds in the development of new enterprises."

• **Bigger Slice**—Partners weren't the only things that Merrill Lynch increased last year. The firm's share of the business on both the New York Stock Exchange and the American Stock Exchange (formerly the Curb) rose to a record high.

In 1953 the giant firm did 10.3% of the round-lot business and 17.2% of the odd-lot business on the Big Board, compared with 9.4% of the round-lot and 16% of the odd-lot business the year before.

On the American Exchange, the firm's 1953 share of total volume was 9.2% compared with 8.6% in 1952.

Commodities, another big arrow in the Merrill Lynch quiver, were laggard last year. Volume of trading on all

commodity exchanges was 3% below 1952, due in large part to a falling off in cotton dealings. Merrill Lynch's share of the business on all commodity exchanges declined to 6.3% from 7.3% in 1952.

Commissions on listed securities remained the biggest single source of income. Merrill Lynch in 1953 completed nearly 1.5-million separate security transactions on which income averaged $20.45 a transaction. In 1952 the firm completed a little under 1.4-million transactions, with income averaging $19.67 a transaction. Part of the increase in average income per transaction was due to last November's hike of 18% in Big Board commission rates.

The average price per share of security transactions made by the firm's customers on the Big Board in round lots was $25.69; in odd lots, $38.45. In 1952, the average price per share in round-lot transactions was $27.39; in odd lots, $40.43.

• **In Fifth Place**—In underwriting, too, the firm's activities grew. Merrill Lynch in 1953 ranked fifth among all underwriting houses in the amount of corporate issues underwritten, either solely or jointly. In 1952 it was seventh.

The firm's total operating income in 1953 was close to $47.7-million, an increase of around $4-million. Meantime, operating expenses climbed to $37.7-million, an increase of $3.5-million over 1952.

Last year $2.1-million was distributed to the employees' profit-sharing fund and in bonuses, contrasted with something over $1.9-million in 1952. (There were 3,723 regular employees as 1954 opened, compared with 3,979 a year earlier and 3,701 two years ago.)

• **Profits**—After allowing for partners' salaries and 6% interest on capital, the firm had profits of close to $6.7-million before charitable and educational contributions and estimated taxes. This was an increase of around $300,000 over 1952, the first rise in profits since 1950, the firm's best year. In 1951, profits before contributions and taxes were around $9.5-million, and in 1950 they were over $12.5-million, or almost twice last year's figure.

After estimated taxes of $4.4-million and charitable contributions of $178,321, there was left last year nearly $2.1-million for partners who participate in net earnings, compared with $1.9-million in 1952.

Total assets at the end of 1953 were $316-million, compared with $265-million at the end of 1952.

Honoring top partner Merrill on his 68th birthday, managers and partners last year established a scholarship fund in his name at Amherst College, his Alma Mater. A scholarship will be awarded each year to a son of an employee of Merrill Lynch.

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That's why many national advertisers — B. F. Goodrich, for example — put this team of business getters to work for them and their local dealers. They use Trade Mark Service in the 'yellow pages' to identify their local outlets. Then in their television commercials they add a reference line just as B. F. Goodrich does: *See your B. F. Goodrich retailer . . . for his name and address see the B. F. Goodrich listing in the 'yellow pages' of the telephone directory under "Tires."*

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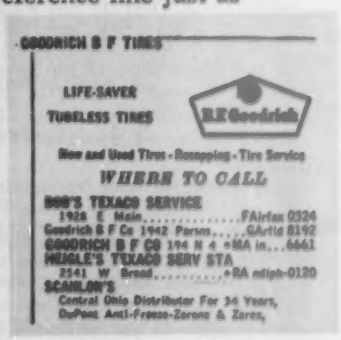
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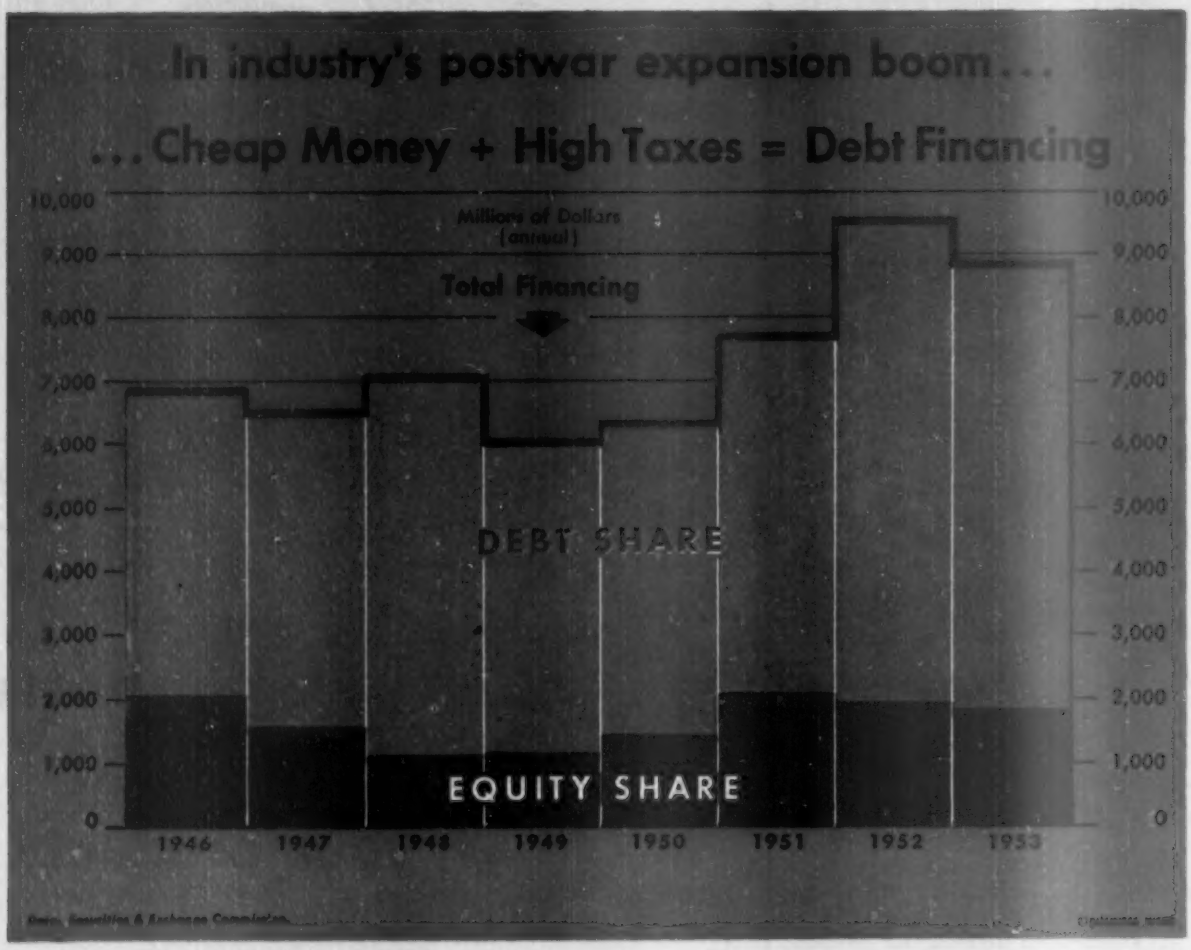

AFTER ALL THOSE BONDS:

What About Stock Financing?

To most people, debt—personal, corporate, or government—is a nasty word.

But, as the chart above clearly shows, the bad connotation of the term hasn't stopped a great number of businessmen from making use of debt capital to finance the record expansion of the past few years.

Of course, there are businessmen who haven't followed the majority. They are the ones whose companies were able—for one reason or another—to clear their decks of debt despite big outlays of capital. They now feel they are in a good position to borrow should the next couple of years turn sour enough to require it.

• **Basis**—Still, for better than 10 years, financial executives have been able to bank on three assumptions: (1) cheap money; (2) high taxes; and (3) a steady inflation.

Add the three factors together and you have a powerful argument for doing just what the majority of businessmen have done: expand by borrowing.

• **Alternative**—Take this example. You're the manager of a company that wants to raise $10-million. To float that as a common stock issue, you have to count on bringing investors a yield at least as good and probably better than that on your outstanding shares and at least comparable to current yields on other similar stock—perhaps as much as 6% to 8%. Say you can get $50 a share on the new issue. That means selling 200,000 shares of stock to obtain $10-million. Those 200,000 shares, even at a yield of 6%, would cost you $3 a share in dividends—or $600,000.

To pay out $3 a share, you would have to earn around $6 a share before taxes—or about twice the dividend rate if you are an industrial company. So, actually you have to figure that if you raise $10-million by stock you must earn at least $1,200,000 more to carry it—and that's not counting the incidental charges and underwriting fees.

• **Cheaper**—The debt route would be a lot cheaper. Even if you had to pay as much as 4% interest—which in the cheap money era is quite high—the cost would be only $400,000.

Not only that, the $400,000 annual interest charge has a feature no dividend payout will ever have—it is deductible as a business expense. That is a major consideration when taxes are high.

Then, too, a bond issue doesn't automatically dilute the equity of your company's stockholders. That is another consideration that many businessmen interested in maintaining control of a company have not overlooked.

Now add the third factor, steady inflation. That means, as a borrower, you are paying off what you owe in ever cheaper dollars.

• **Ahead**—How about the future?

Today financial managers are taking a new look at policy. Many are setting down 1954 as the year when some of their assumptions stop being valid.

Here are just a few of the more salient things that have arisen since the first of the year affecting financing:

• Corporations, it seems certain, are in for some long-awaited tax relief. The excess-profits tax already is off the books. Ordinary corporate income taxes may stay above the 50% level this year, but the outlook certainly points to lower rates in a couple of years. This means earned income is a lot more valuable.

• Money is likely to cost a bit more. Until a couple of years ago, it was Washington policy to hold down interest rates. That policy has been considerably modified. Though there is nothing to indicate the country will ever go back to the high rates of interest prevailing before the 1930s, businessmen can no longer count on the sort of easy money they got used to in the years immediately after World War II.

• Stockholders are coming in for better treatment. Whether Congress will revise the tax law this year to eliminate part of the double taxation on dividends is far from certain, but Wall Street seems to be betting it will.

• Depreciation rates on capital equipment, long a thorn in the side of industry's financial managers, appear certain to be changed so that companies will be able to build up cash reserves for plant and equipment replacement much faster.

• **Policy Shift**—Put all these pieces together and you end up with a philosophy of government that frowns on debt as a means of raising money.

Treasury Secretary George M. Humphrey summed it up neatly in his testimony before the Senate-House economic committee the other day:

"In the past 10 years better than 75% of private industry financing has been done by going into debt instead of selling shares. What does this mean? It means simply that we have enterprise heavily in debt so that it doesn't quickly develop as it would without heavy debts hanging over it."

• **Disagreement**—That may be what it

He's helping you take your morning shower

This high pressure water jet is washing tin ore out of a Malayan gravel pump mine. But perhaps you didn't know that tin — in chemical form — is important in manufacturing both plastic shower curtains and perfumed soap.

Because tin is one of our oldest metals, it is easy to overlook the many new ways tin can be used today.

The same metal that serves so efficiently in the cans that preserve our food is now, for example, being allied with titanium for critical jet aircraft parts.

The metal long vital to industry for solder and babbitt is now, in the form of new alloys, playing a key part in the field of atomic energy.

In chemical form, tin can help make better and cheaper hundreds of products we all use. Today you can not only wash with tin — in perfumed soap. You can even wear it — in tin-weighted silk dress and tie fabrics.

No other metal combines all the properties of tin. Tin is inert, non-toxic, friction and corrosion resistant. Tin can be easily plated in very thin layers. Tin is highly malleable, second only to gold. Above all, tin is economical to use, for so little tin can do so much work.

Over a third of the world's tin is mined and smelted in Malaya. This famous Straits Tin, over 99.87% pure, is world renowned for its absolute reliability of grade. And to American industry in its constant search for better products — and better ways to make them — Straits Tin offers unique advantages in its ability to make other metals and materials more efficient.

In your own product research and development, remember that versatile, plentiful, economical tin is the most useful of all metals. Write now for information about Straits Tin.

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means economically—though some men, such as Alvin H. Hansen, Littauer professor of political economy at Harvard, don't agree—but what does it mean to the man who's laying out plans today for his company's money needs five years hence?

In the opinion of some, even in the face of testimony like Secretary Humphrey's, the future holds just about what the past has held—and financial planners better get ready. They see:

Industry has just gone through its biggest expansion on record. So for the next two or three years, the demands of money aren't going to be so great as they have been in the past. The problem is five years away.

• **A Superboom?**—That takes you up to about 1958. That is a period when the war-baby crop is going to start creating large new consumer demands. Take the oil industry. Children born in 1941 and 1942 are going to be driving cars and in the process using vast amounts of gasoline. Or the auto industry: New car demand should expand at great pace. That hits steel and a host of other industries.

But, because of the hollow generation of the Depression, the labor supply is likely to be tight. The war-baby group will not be of working age, since they'll still be in their teens and the trend is upward in starting age for the new work force. Also, the normal work week tends to shorten.

Together, the two factors mean that industry, if it is going to meet demand, will be forced to increase productivity at a rate greater than the 3% a year accepted as normal. Lots of new machinery will be needed.

In short, the period 1958-60 has all the earmarks from today's vantage point of another superboom—one that some businessmen think may make the immediate postwar boom look normal

• **Financing**—With consumption high, labor supply relatively low, and capital expenditure requirements above even the postwar record, the demand for new money is clearly going to be terrific.

Question: Where does a company get the money to finance the boom?

Those who are basing their plans on the assumptions above think they have the answer. Despite an inherent distaste for debt, they say, businessmen had better make up their minds that borrowing for expansion is here to stay, because you can't overlook these facts:

• Except for interim adjustments, money rates are going to remain attractive regardless of how Washington feels.

• More and more of today's capital is being shunted into institutional funds—banks, savings and loan associations, pension funds, mutual savings banks, life insurance companies.

This means the bulk of new capital will be in conservative hands. Though

World's largest—Ryan fuel tanks for B-47 Stratojet

THE PROBLEM: The world's fastest bomber, the far-ranging B-47 Stratojet, needed the world's largest wing fuel tanks . . . tanks with a capacity equal to that of a good-sized tank truck. What's more, these tanks had to be completely gas-tight by welding alone. THE SOLUTION: Boeing turned to Ryan who devised ingenious methods to manufacture in volume the huge, external tanks —each of which requires more than 30,000 electrical spot welds.

Besides developing and manufacturing products of its own design, Ryan produces airframe components to prime contractors' specifications. Typical of these are other "range extending" products, like the Ryan-built aft fuselages and refueling pods for Boeing's KC-97 mid-air refueling plane.

These accomplishments point up Ryan engineering skill . . . skill that has been *specialized, ingenious* and *versatile* for 31 of the 50 years since powered flight began. Master craftsmen, Ryan does the *difficult*, the *intricate*, the *precision* jobs of today's high-speed air age.

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Ryan builds Boeing KC-97 fuel tanks, too.

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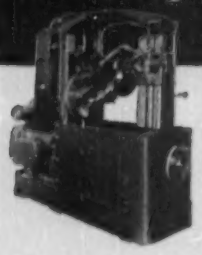

How about that machine you're thinking of replacing today? Awhile back it looked pretty good, didn't it? Good enough to fill your needs when you bought it, anyway. But now it can't handle today's job and it must be replaced.

When you buy that new machine—*look ahead.* Don't invest in one that just barely meets today's needs. Think about that extra capacity you'll probably need tomorrow.

Lees-Bradner manufactures a full line of hobbing machines to meet different requirements. If a smaller capacity machine will do your job today—*and tomorrow*—fine, that's for you.

But if you suspect you'll need higher speeds, faster feeds and greater production capacity in the near future it's wise to gear your thinking and purchasing accordingly.

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IF YOU THREAD OR HOB . . . GET A BETTER JOB WITH A LEES-BRADNER

there is some indication that such funds are getting less conservative (BW—Jan. 2'54,p58), for the majority of business the money they control won't be available as equity capital.

• **Choice and Necessity**—Alfred E. Wolf, financial vice-president of Standard Oil Co. (Ohio), put it this way:

"As a result, the use of senior capital (bonds or debentures) will be a matter of both choice and necessity. Choice because of low cost, and necessity because of the large portion of new savings whose investment is directed by such institutions."

• **Dilemma, Too**—This doesn't relieve the financial planners of that often pesky problem called stockholder relations. The very men who see debt as the chief source of new capital in our next superboom also see equity capital as a major problem.

Look at it this way: If the majority of savings is tied up in conservative institutional hands, there will be less around for equity shares to tap.

But you have to look at another axiom: A company that wants to borrow must have an equity ratio that makes the lender consider his investment a good risk.

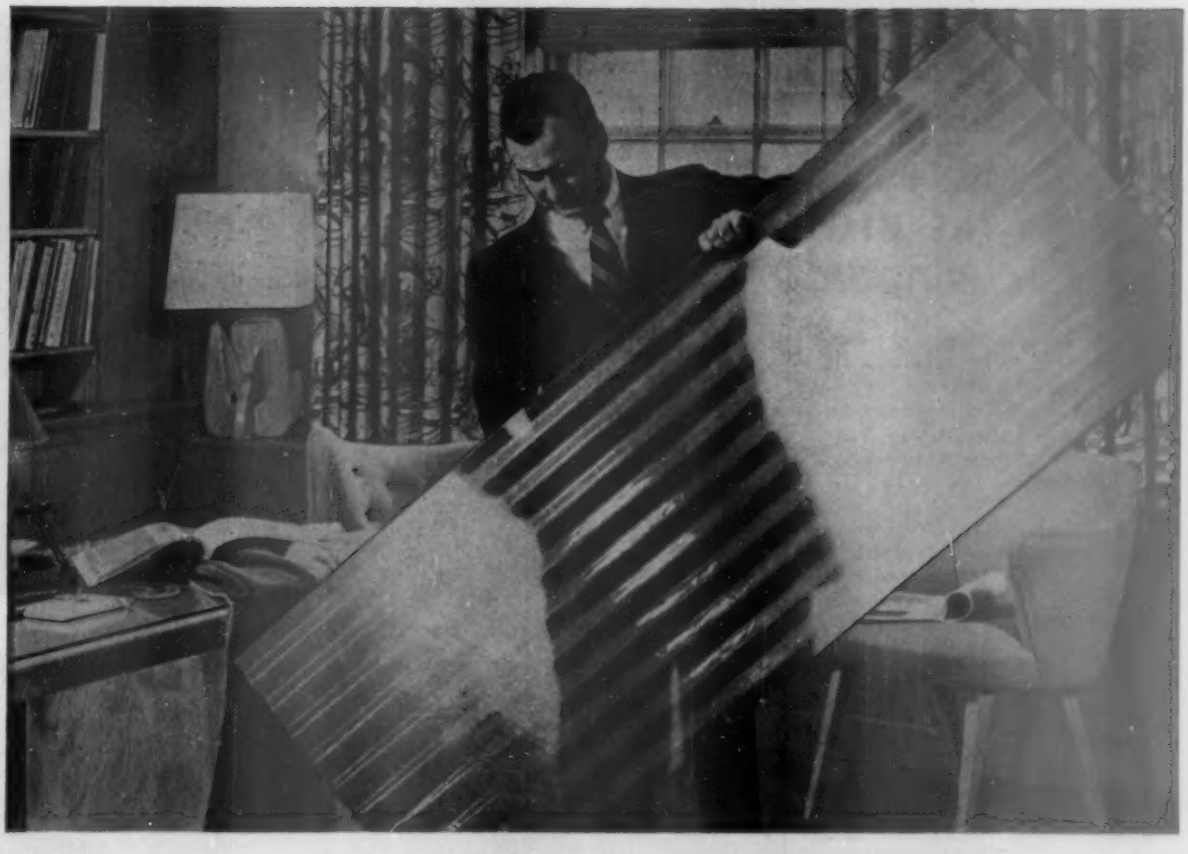
• **Equity Base**—So today—looking ahead five years—some financial planners have laid out elaborate programs for improving their equity position. To do that, they are going to the hinterlands—out of Wall Street, so to speak, into the country's by-lanes. Their goal: to sell themselves to farmers, school teachers, factory workers.

That's virgin territory where a lot of savings can be brought into corporate share investment. It isn't enough to provide the funds necessary for the end-of-the-decade boom, but it will give companies the base from which to reach into the debt capital till.

• **Dividends**—To get the small investor interested, management will have to begin liberalizing its dividend policy, even if that means retaining much less earnings to plow back into the business. Capital demands of the size many see ahead can't possibly be paid out of current or accumulated income. So why not use more of those funds to build up your stockholder family and thus be in a position to get at the debt capital funds, where the big money will be?

You can make the small investor—who is after income, rather than appreciation—very friendly and receptive to new issues if he gets a handsome return on previous investments.

• **Early Start**—One thing that men who are looking ahead five years caution about: If the planning is going to work, you have to start now to build your equity base. It's a long-term proposition that—if their guesses are right—will pay off come 1958.



Strictly for idea men... **a brand new material**

Pound for pound, it is as strong as steel. It won't rust, corrode, or rot.

It is exceptionally tough and crack-resistant. Prolonged heat doesn't seem to hurt it.

That's why this sheet of polyester resin and glass fiber may signal a new era in building and fabricating.

This particular sheet is *safe* for building—because it won't support a flame. "Tunnel" tests have shown this material has a flame spread rating of less than 100. Now fabricators can offer with assurance to the building industry a polyester-glass fiber sheet that can meet basic building codes.

Why won't it support a flame? Because it's made with HETRON—a new Hooker polyester containing a high per cent of chemically built-in chlorine that imparts unusually high fire resistance for a material of this type.

It is easily fabricated into sheets, auto bodies, pipe, and other shapes—in colors, translucent and opaque. In fabrication of more intricate shapes, HETRON's low shrinkage means fewer rejects.

HETRON is just one example of Hooker Chemicals, made from salt, at work in 30 different industries—making possible thousands of better products, at lower cost. Consider this fact when you decide on a supplier of heavy chemicals and intermediates.

PLASTICS MOLDERS and fabricators can get HETRON in commercial quantities now. For technical data sheets on this new polyester, write Hooker Electrochemical Company, 21 Forty-seventh Street, Niagara Falls, New York.

FLAME TEST shows how safe HETRON is. The two "houses" are built of polyester glass-fiber-reinforced sheets. Sheets at left are made with an ordinary polyester, those at right with HETRON.

15 MINUTES LATER, ignited by candles, ordinary resin sheets are almost completely destroyed. Even the blowtorch at right has failed to ignite sheets made with HETRON.

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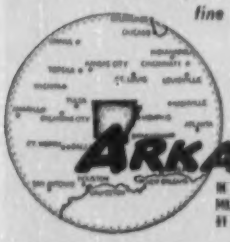

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Governor

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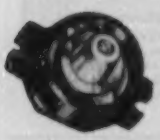
Motor Repairman Says KLIXON Protectors Reduce Major Repairs

KEENE, N. H.: F. A. Farrar, owner of the Farrar Electric Motors and Repairing Shop, knows from experience how KLIXON Inherent Overheat Protectors prevent motor burnouts.

"It is our opinion that the motors equipped with Klixon Overload Protectors have reduced the major repair expenses to our customers."

The KLIXON Protector, illustrated, is built into the motor by the motor manufacturer. In such equipment as refrigerators, oil burners, washing machines, etc., they keep motors working by preventing burnouts. If you would like increased customer-preference, reduced service calls and minimized repairs and replacements, it will pay you well to ask for equipment with KLIXON Protectors.



Manual reset

KLIXON

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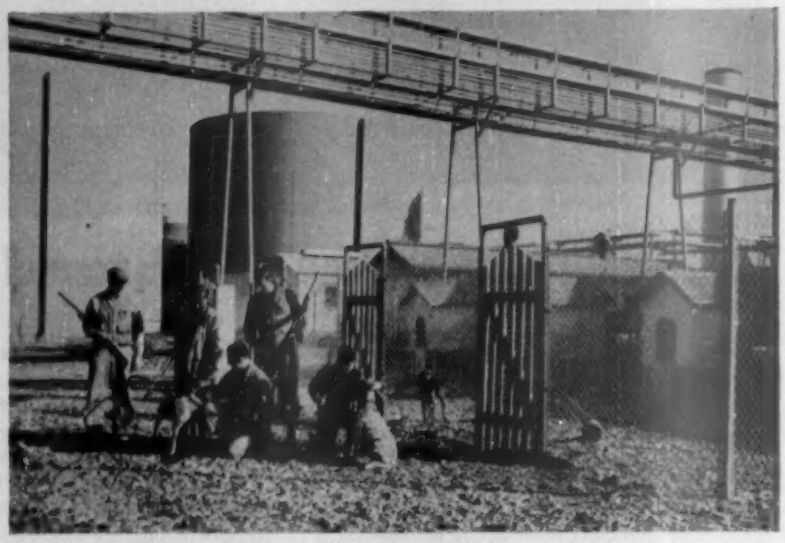
At Diamond Alkali's Deer Park plant, near Houston . . .



. . . Employees relax on its grounds. Diamond finds dividends in . . .

Playing at the Plant

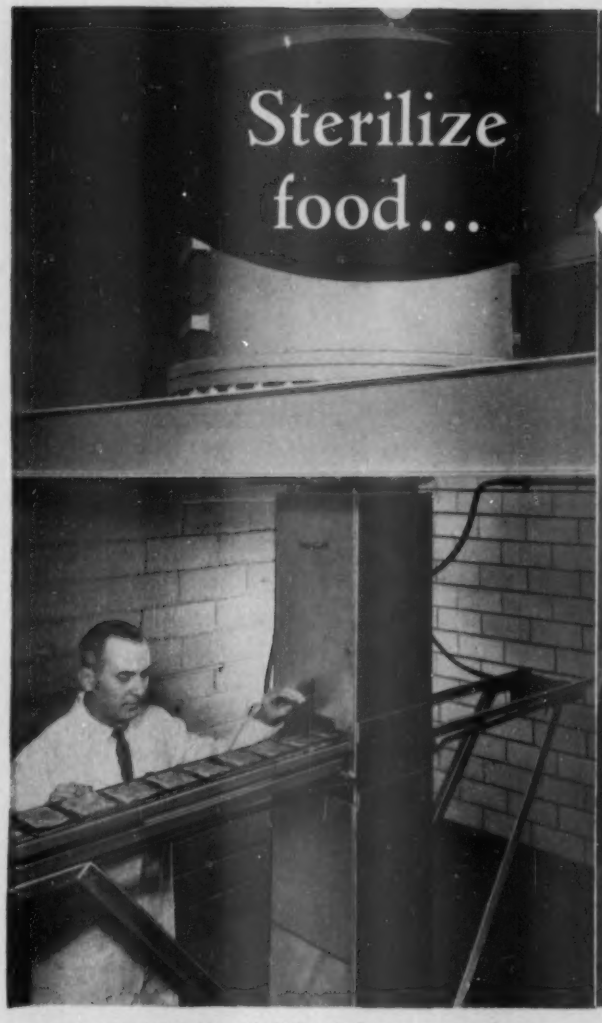
Most companies today consider recreational facilities for employees just as necessary as fire insurance on the plant. Still, few of them go as far in fun and games as Diamond Alkali Co. does at its Deer Park caustic and chlorine plant near Houston, Tex. (pictures, above).

Diamond's recreational setup runs the whole course: from hunting and fishing, to swimming, bridge, target shooting, picnicking, and feeding animals. And it all takes place right on the company's 500-acre property near the Houston Ship Channel, in the shadow of the pipes, stacks, and towers that make up a complex chemical plant.

Having everything nearby eliminates travel time. For instance, employees keep their hunting dogs in pens next to the plant (lower picture, above). It's no trick for an employee to swap his work clothes for his hunting togs and be out in the woods hunting minutes after his shift ends.

• **Moving Up**—Many management men would question whether it's necessary or wise to bend over backward so far to please plant personnel. Not Diamond's management. The company's top brass in Cleveland is backing the idea to the hilt.

(Story continues on page 76.)



COLD STERILIZATION with G-E cathode ray generator has tremendous potential. Meat, grain, drugs are among the many products now being subjected to intensive research.

15,000,000-VOLT G-E betatron provides maximum speed and sensitivity for radiographic inspection of thick sections. G-E builds 25 x-ray units ranging upward from 15,000 volts.

G-E radiation equipment does both—suggests possibilities for profitable use in your own process

CUTTING pressure vessel inspection time from eight hours to six minutes . . . helping synthesize hormones . . . monitoring 900 cans of beer per minute. These are but a few of the widely diverse tasks now performed profitably by General Electric x-ray and kindred radiation equipment.

Right in your own plant there may well be jobs that can be handled faster, better, at lower cost by these versatile, non-destructive tools. Safe and compact, they can be operated without highly trained workers.

Perhaps yours is one of the countless problems already solved by radiation devices in another plant. Why not have a G-E X-Ray specialist appraise your needs? Or write X-Ray Department, General Electric Company, Milwaukee 1, Wisconsin, Rm. A024.

For over 30 years in industry — nearly 60 in medicine — General Electric has pioneered advances in x-ray equipment

You can put your confidence in —

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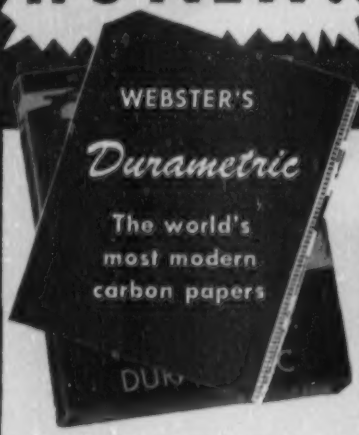
It's NEW!



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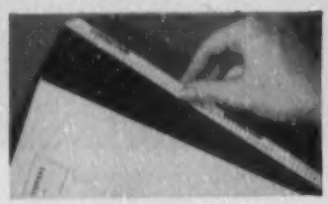

This Scale Edge is preferred by secretaries everywhere because:

- It measures the lines of space on any page — prevents "running over."
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Ask for a free sample of Webster's Durametric Carbon Papers at leading office equipment dealers everywhere. Or write to us on your company letterhead. Please give make of typewriter and number of carbons usually required.

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Families of employees use plant's play facilities.

They come early, stay late, to enjoy the fun. It's the way . . .

"Country Club" Kayoes Absenteeism

(Story starts on page 74)

Two recent moves show how satisfied the big brass is:

• C. E. (Ted) Lyon, general manager of the Deer Park plant for seven years and guiding light of the program, has been promoted to vice-president in charge of Diamond's chlorinated products division in Cleveland.

• Two other Diamond plants are now patterning employee programs after those of Deer Park.

• **Evidence**—A quick look at some statistics shows why Diamond's top management is so pleased with the program it has under way at the Texas plant:

• Absenteeism is as rare as the gout. Daily plant attendance averages about 99%, hit 99.6% in December.

• Turnover is just as low, about 1% a year. On top of this, Diamond has a waiting list of people who want to come to work at Deer Park.

• The plant has never had a lost-work stoppage in its six-year history.

• The plant has shattered production records, and productivity consistently runs ahead of forecasts.

(Story continues on page 78.)

TYPE EV SPEEDRANGERS are electronically-controlled, Thyraton type, adjustable-speed power drives with a wide range of operating speeds and good speed regulation.

SIZES. ⅛ to 1½ HP with basic speed of 2400 RPM.

SPEED RANGE. Drive speeds are adjustable down to one sixth of the basic speed for continuous duty, 50°C.; down to one twentieth of the basic speed, intermittent duty.

HOW IT WORKS. Single phase AC power is converted by Thyraton type electronic rectifiers to supply a DC variable-speed drive motor. This DC drive motor is of the separately excited type, which inherently has good speed regulation.

STANDARD CHARACTERISTICS are constant torque rating over the full speed range . . . complete control from a compact operator's station . . . infinite steps of speed adjustment . . . smooth starting and good speed regulation.

OPTIONAL FEATURES are jogging, reversing, dynamic braking, wide or special speed ranges and special duty cycles.

New

electronic variable speed drives

TYPE GV SPEEDRANGERS are electronically-controlled, motor-generator type, adjustable-speed power drives with a wide range of operating speeds and good speed regulation.

SIZES. 2 to 10 HP with basic speeds of 2400, 1750 and 1150 RPM.

SPEED RANGE. Drive speeds are adustable down to one sixth of the basic speed for continuous duty, 50°C.; down to one tenth of basic speed intermittent duty.

HOW IT WORKS. Three or two phase AC power is converted by a motor-generator set and by tube type electronic rectifiers to supply a DC variable-speed drive motor. This DC drive motor is of the separately excited type, which inherently has good speed regulation.

OPERATION. The Type GV Speedrangers have the same standard characteristics and optional features as listed above for the Type EV Speedrangers.

MANY TYPES. The DC drive motor for both the Type EV and GV Speedrangers are available with Master Unibrakes, Fluid Drives and any of the five types of Master Gearmotors.

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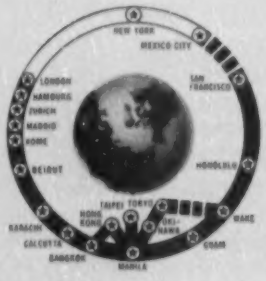

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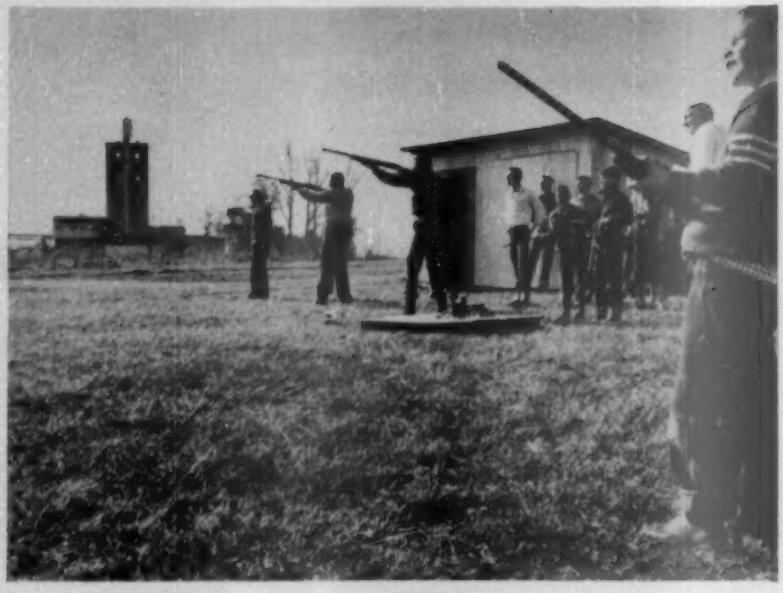
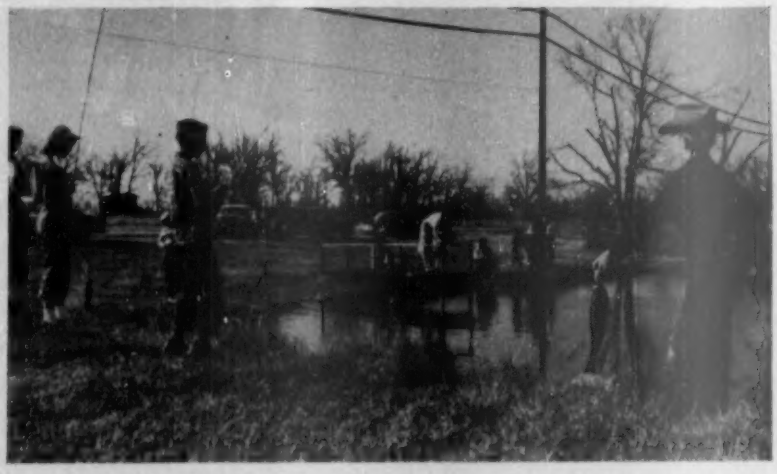


Skeet shooting a few yards from the plant and . . .



. . . Fishing in the company pond helps out as . . .

Play-As-You-Go Lifts Productivity

(Story starts on page 74)

All this would seem to indicate that the 600 employees at Deer Park take a brighter than average view of their lot. Unions have twice lost, by heavy margins, in attempts to win bargaining rights at Deer Park, although nearby Shell Oil Co. and Rohm & Haas plants are unionized. The facilities bring the employees to the plant early in the morning and keep them there long after quitting time. What is even more important, employees' families and friends have the full run of the layout. It all adds up to accomplishing just what the company wants to accomplish: the creation in all concerned of a nice, friendly attitude.

Besides a well-stocked fish pond and a skeet course (pictures, above), Deer Park has some unusual features. There's a pheasant pen, where as many as 600 birds are kept until they are released into Diamond's 100-acre hunting preserve—where coon, fox, and possum are also hunted. There's a cattle feeding pen, where employees raise their own calves and yearling steers, thus cutting their beef costs to as low as 33¢ a lb.

On top of this, there's the rustic clubhouse, set alongside the swimming pool. This is the center of evening activities. It has a 3,200-sq. ft. dance floor, a giant fireplace, and tables for card games.

(Story continues on page 80.)

"Performance of new low cost office typewriter sold me!" says Minute Maid ad manager

JAMES RAYEN, Advertising Manager, Minute Maid Corporation says: "Yes, performance has me sold on the Remington Office-riter. I bought mine simply because of its compact size...figured it would be easy to tuck away, yet handy for knocking out a piece of copy. But that's not why I'm so enthusiastic about it now...the extra dividend of speed, rhythm and real big machine performance is the reason you'd have to fight to take it away from me!"

Remington *Office-riter*

A Product of Remington Rand

—Thousands of professional and business men are equally enthused! Here's why:

1. The Remington Office-riter handles paper and forms up to 11 inches wide ...writes a full 10-3/10-inch line.

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3. The Office-riter makes up to 10 good carbon copies, cuts clean stencils.

4. The Office-riter has a full standard keyboard, clean, sharp printwork and every feature needed to handle all your office typing PLUS the extra advantages of compact size and low cost!

A demonstration will convince you that this unique typewriter deserves a place in *your* office. Call your dealer or Remington Rand Business Equipment Center today! Convenient terms.

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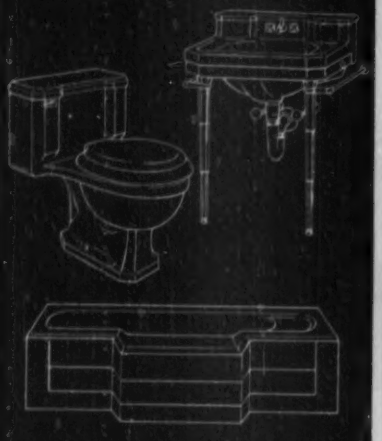

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A subsidiary of the MURRAY Corporation of America

Next year this plant-front plot will be a golf green.

Big Recreation Program Gets Bigger

(Story starts on page 74)

Latest projects include the leasing of five reservoirs near Houston for duck hunting and the beginning of construction of a baseball diamond. Things now being planned, and soon to come: an 18-hole golf course in front of the plant, and a new preserve for turkey shooting.

• **Two-Way Street**—These are unusual facilities for a company to surround itself with, but what is even more unusual is the fact that it all costs Diamond surprisingly little.

Here's why:

Basically, the program and the projects are employee conceived, employee constructed, and employee operated. The Diamond Alkali Recreational Assn., which is in charge of activities, presents a project to management. If management thinks there's enough employee interest, it gives the go-ahead, supplying the necessary materials. But the employees are expected to supply the labor. A good example of this was the building of the clubhouse.

The engineering department helped design the building, and employees worked on it during off hours. On weekends, as many as 100 people would be working on the project. Pipe fitters, carpenters, and other hourly workers held down the foremen's spots, and many white collar workers found themselves digging ditches and generally working as laborers. Youngsters carried nails and shingles and helped to clean up. Wives cooked meals for the workers. Employees on sick leave served as timekeepers. Before the clubhouse and pool were finished last year, an estimated 95% of the plant personnel had helped out.

Other projects have been handled the same way. The swings and seesaws in the childrens' playground were made by employees in the shops; employees operated heavy equipment to throw up embankments to build the fishing pond and to build the butts at the rifle range.

• **Annual Dues**—The recreation association runs the various activities through committees. Each employee pays $3 a year to become a member, and Diamond matches the $3. The association gets additional income from vending machines and from leasing land to employees for cattle raising. Last year, this income came to about $12,000, and was used to operate the various employee clubs at the plant.

The more expensive sports, however, have a premium placed on them. For example, each employee interested in using the new duck hunting preserve kicked in $15.

This covered the $1,800 rental for the land and the price of some decoys for the hunters as well.

Lyon and his successor as plant manager, Frank Chrencik, don't believe the program should be a patronizing, straight giveaway proposition. Lyon says, "I believe in something for something."

This was evident when the employees wanted to start a baseball team. They approached management for uniforms. Management said: "First, let's see how you make out. Is there enough interest and enthusiasm in the team?" The ball players accepted this, donned old clothes, and went out and won the Channel Championship their first season. Then they got their uniforms.

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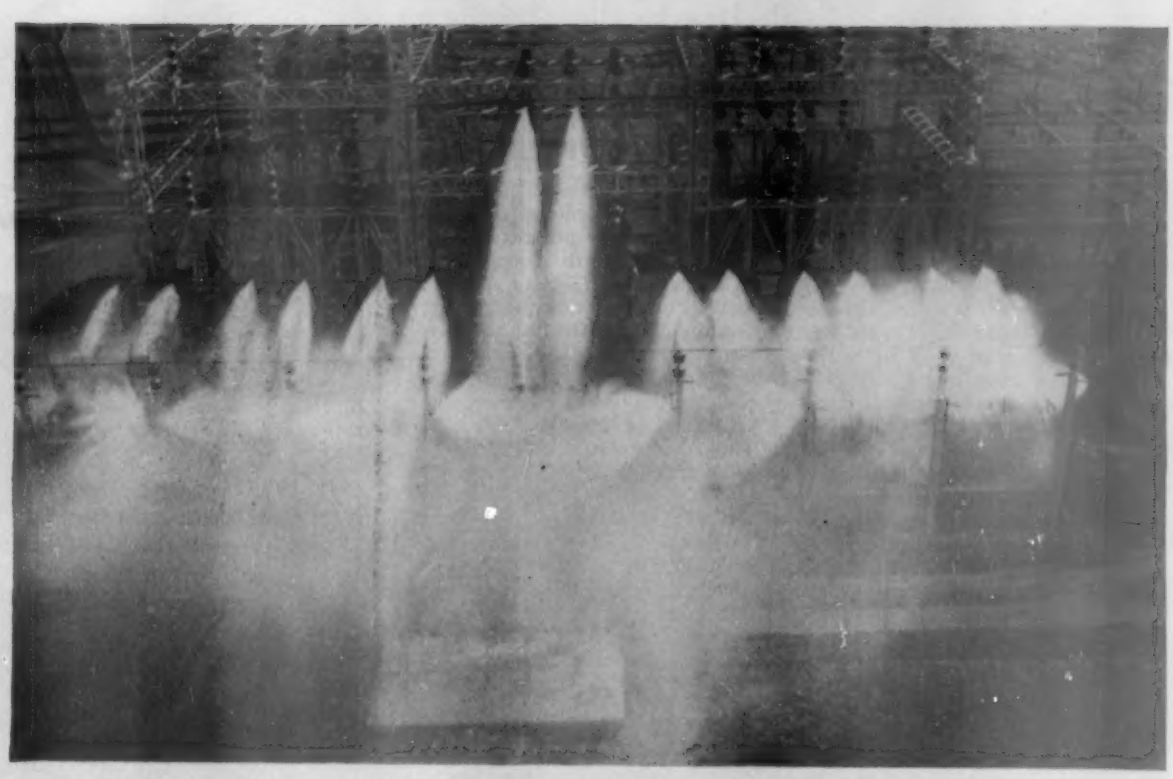
TAKE THE FIRST STEP IN EVERY SALE

F.W. DODGE CORPORATION



TESTING WaterFOG SYSTEM in midwest power station. Rockwood's new specially engineered High Capacity WaterFOG Heads completely cover all transformers in large switchyard area.

Waterfalls that hold off tragedy

If the waterfalls above did not pour forth precisely when they're needed, lights would go out for miles around, radios and TV sets would be silenced, refrigerators would refuse to run—*and iron ore that feeds American industry would be trapped within the mountains.*

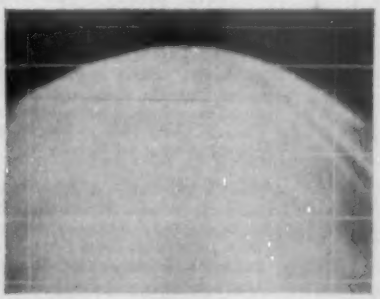
Why?

Because the Power Company station above generates power for surrounding communities and for vast iron ore mines in the vicinity. The waterfalls—of Rockwood WaterFOG—automatically protect the station's transformers against fire. This WaterFOG consists of millions of particles of cooling, heat-absorbent water. It instantly chokes off oxygen and rapidly reduces temperature in case of fire.

Now this instantaneous fire protection is brought to *every* type of property through a revolutionary new Rockwood WaterFOG Sprinkler Head. A result of years of research between Rockwood engineers and engineers in th U. S. Navy, municipal fire departments and industry, this new Head makes it possible to discharge Rockwood WaterFOG from conventional sprinkler systems. Send coupon for complete details.

ROCKWOOD SPRINKLER COMPANY

ROCKWOOD *Engineers Water . . . to Cut Fire Losses*



New Rockwood WaterFOG Sprinkler Head discharges fire-smothering mist *down into* flames. Each head covers approximately 30% more area than ordinary heads. You use less heads—they use less water.

Get the Facts. Illustrated booklet shows how Rockwood WaterFOG can help you cut your fire losses. Find out how it can be used on your own property.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Fixed Installation Division
112 Harlow Street
Worcester 5, Mass.

Please send me the 12-page illustrated booklet, "15 Types of Fire Protection," giving actual case histories of different types of fire control.

Name.....

Title.....

Company.....

Street.....

City.....

Zone.....State.....

Building Up More Brain Power

A FEW YEARS AGO it was a scientific plaything. More recently, it has become an engineer's most versatile tool. Now it has moved into the field of corporate management. It's the electronic computer—the big "brain" that does in a trice what an army of mathematicians would find it difficult to perform in weeks or months of trices.

Already, Monsanto Chemical Co. has speeded its accounting system (BW—Dec.6'52,p81) by using International Business Machines' card-programmed calculator.

Now General Electric Co. becomes the first industrial company to install Remington Rand's $1-million digital computer called the Univac (BW—Nov.21'53,p68).

Two insurance companies—Metropolitan Life and Franklin Life (Springfield, Ill.)—also are buying Univacs.

There is nothing new, of course, in industry's use of smaller versions of electronic computers. Aircraft engineers, for instance, would be hog-tied without them. But the big brains are novelties among office machinery.

THERE ARE TWO significant things about GE's announcement that it's putting a Univac unit in its major appliance division in Louisville, Ky. (BW—Nov.7'53,p120):

• Instead of using the "brain" for engineering purposes, GE is applying it to speed up general management procedures.

• Along with Univac, GE is hiring a college professor from the West Coast who'll work in the business procedures section. He is a mathematician whose work will be in research and analysis.

Apparently, GE has become convinced—since it is putting a lot of money into its Univac project—of what scientists have been telling business for several years: "We've got new mathematical tools, theories, and electronic gadgets that don't have to be confined to laboratories or engineering rooms. We can change a lot of your management intuition into facts and figures."

Before GE decided to set up an electronic computing system, it had an outside engineering firm survey possible applications. The consultants' report said that while "the immediate benefits [from the Univac] in the form of more timely and useful information should not be overlooked . . . it is important to keep in mind that the greatest potential benefit to the division management lies in the future use of this equipment to provide forecasts and projections of production, marketing, and other activities. Through the use of such data, all levels of management will be better informed as to future courses of action."

Immediate benefits, of course, will come from doing electronically what it has been necessary in the past to do manually.

GE plans to use Univac first on payrolls, materials scheduling and inventory control, general and cost accounting. This will cut down the number of clerical personnel needed and, on top of that, will speed information to management.

BUT FAR MORE IMPORTANT is what lies ahead. Univac will have lots of spare time, especially in the beginning, since it will only gradually take over one job after another. That spare time is where GE's newly hired professor comes in. He'll cook up problems.

In an actual industrial situation, the Univac department will have a chance to test out a lot of higher mathematics whose use is now made possible by the problem-solving ability of the electronic brains.

Sales analysis, market research, forecasts that take into account variables and unknowns that management can understand now only by instinct—all these fields lie wide open to attack by Univac.

OF COURSE, there are some in management circles who shudder at the thought of electronic brains. They see them as usurping management's decision-making powers.

This fear doesn't seem well founded. The new machines will give management the data basis for more intelligent decisions in an increasingly complex economy.

To the decision-makers in management, the electronic age will now have the same meaning as it has had to engineers.

THE BOSTON MAN IN 1954

IN ALBUQUERQUE, NEW MEXICO...
W. H. Cornelius, Harry Cornelius Co.

IN PEORIA, ILLINOIS...
J. F. Bennett, Couch & Heyle

IN LOS ANGELES, CALIFORNIA...
Harry Tuch, Warren & Bailey Company

* W. H. Cornelius, Harry Cornelius Company, 1510 Second St., N.W., (Phone 3-7739) has served Albuquerque industry for 21 years. Serves contractors, mines, and atomic research centers with fine Boston rubber products.

* J. F. Bennett, Couch & Heyle, 1016 South Adams St., (Phone Peoria 4-3101) furnishes Boston rubber products to railroads, barge lines, mines and factories of Central Illinois, parts of Iowa. A top industrial supplier for 75 years.

* Harry Tuch, Warren & Bailey Company, 350 South Anderson St., (Phone AN-12151) is one of oldest and largest industrial suppliers on the West Coast. Serves Southern California industries from Petroleum to Motion Pictures with Boston products.

See the Boston Man in your area. Check your Classified Directory or write Boston Woven Hose & Rubber Co. →

THE BOSTON MAN
IN 1880

The mammoth belt pictured above stood too high on its freight car to pass through many of the railroad tunnels and underpasses en route to its West Virginia destination. Boston Men rolled up their sleeves . . . teamed up with railroad freight traffic experts . . . pored over maps and timetables. As a result, the giant was rerouted many miles, but it wasn't late for its installation.

Good service is a Boston product. Fast delivery can mean savings in money and man-hours to a customer. For that reason, Boston offers direct, immediate service from warehouses located strategically throughout the country.

Tailoring industrial rubber products to specific uses . . . the above-pictured belt, for example . . . is a specialty of Boston Men. Boston experts visit customers' plants and mines . . . talk to the men who use industrial rubber . . . study plant processes and working conditions. Back in Boston's Research and Development labs, they find the answers.

Do you need an answer to an industrial rubber problem?
See our distributor in your area. He is your "Boston Man."

BOSTON

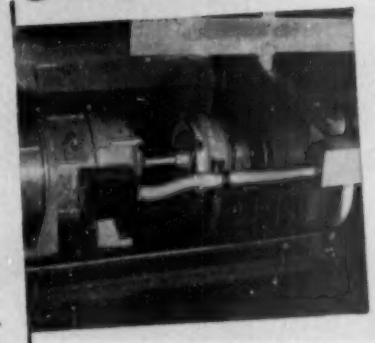
BWH

BOSTON WOVEN HOSE & RUBBER CO., Box 1071, Boston 3, Mass.

Industrial Hose • Belting • V-Belts • Packing • Tubing • Garden Hose • Tape • Matting

Cures Motor Burn-Outs with Fluid Couplings

Fort Niagara Corrugated Box Division of Robert Gair Co., Inc. cured two production "bottlenecks" recently. Heavy shock loads on two corrugating equipment units—working through mechanical drive—were burning their motors and breaking the corrugating medium. Niagara submitted the problem to the Twin Disc Hydraulic Dealer, the J. A. Webb Belting Co. of Buffalo, N. Y. By installing a HYDRO-SHEAVE® Drive and a Fluid Coupling on the motors, shock loads were cushioned out to permit quick, smooth acceleration to normal rpm.



Twin Disc 10.6 HYDRO-SHEAVE on a 25 hp 1750 rpm motor powering a single-facer corrugator drive (top of page) and, (below) a 17.5 Fluid Coupling on a 60 hp 1200 rpm motor powering the main corrugator drive. Inset, Twin Disc Fluid Coupling—available in sizes 6.25 to 27; capacities ¼ to 700 hp.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • SEATTLE • TULSA

Sharing Profits . . .

. . . with the people in the lab is Airkem's way to encourage more creative research.

Incentive plans have gained widespread acceptance in production and sales, but up to now management hasn't been holding very many carrots on sticks in front of its creative personnel, for instance those in research.

Airkem, Inc., of New York City, however, has just announced an incentive plan for the people in its research and development division. The results of the plan's first year—1953—show it's no pin money operation. The company's average researcher got an additional $1,000 at year's end.

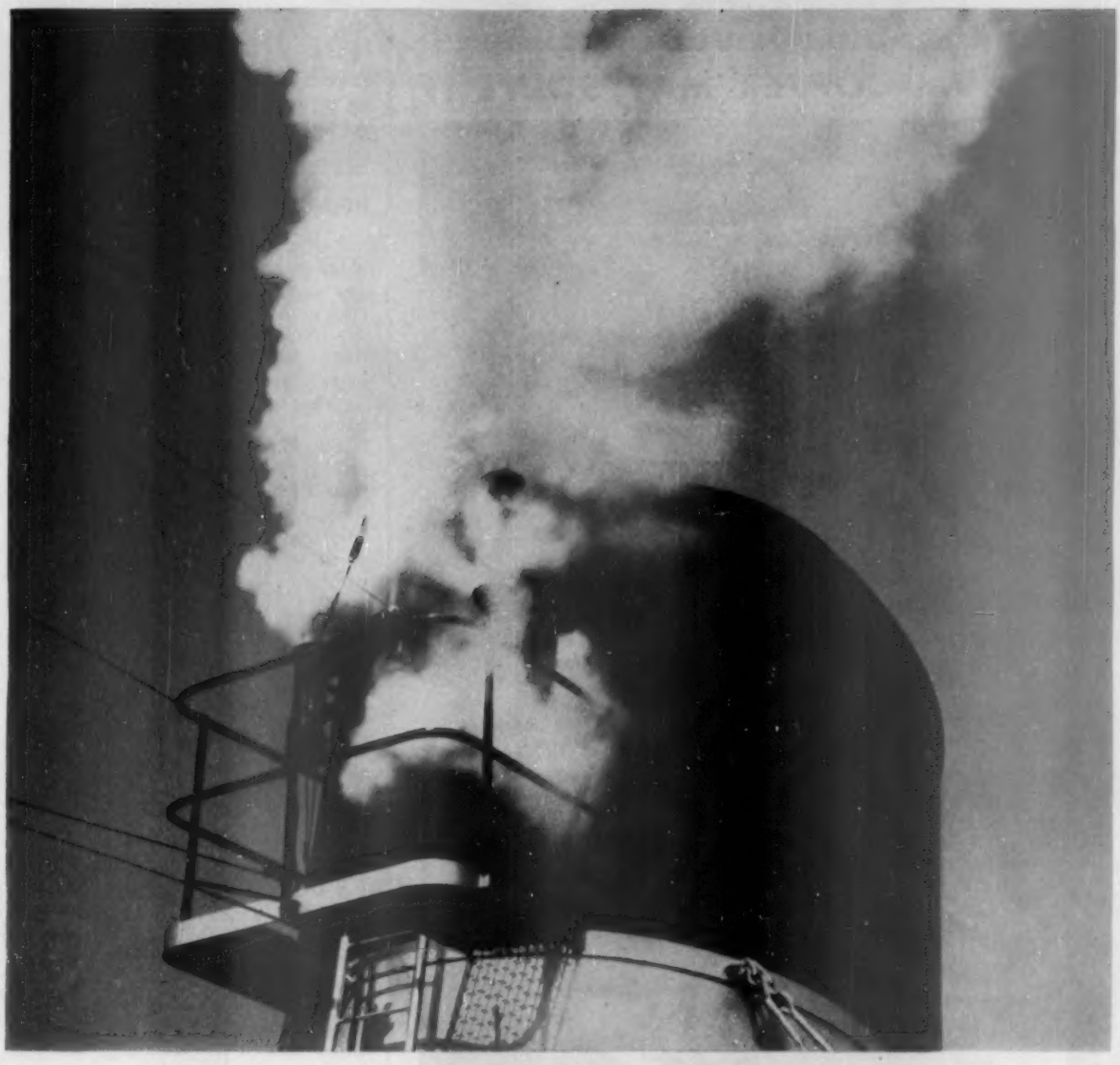
• **Blueprint**—Here's how the plan works: Airkem is a manufacturer of home and domestic counteractants—principally antismell agents, the best known of which is Airwick. Airkem develops various counteractants, either for general application, or for a particular company to knock out a specific odor. Retail sales are handled by Seaman Bros. in the case of Airwick, and various franchise outlets and distributors throughout the world for other products. Airkem is, therefore, a wholesale operation: Its wholesale volume last year was something over $2.5-million.

The incentives are distributed through a general fund and a special award fund. The first is supposed to reward the individual researcher's creative contribution to the over-all achievements of the research and development division. The special award fund is to take particular notice of individual contributions.

The funds are created on a percentage of sales volume basis. Newly developed products make up the bulk of the source, but the return from products can be applied to the funds for up to six years.

There are 24 shares in the general fund and 18 employees in the division. No one employee has less than one share, but supervisory personnel, or those contributing out of proportion hold more shares, perhaps as many as two and a half.

• **The Take**—Airkem says a typical distribution might work like this. Over the period of a year, the company sells 240,000 gals. of a new product, considered to have been developed by the entire division. On this product, 10¢ per gal. is allotted to the general fund: This gives the fund $24,000. That's $1,000 a share, so the researcher holding one share gets $1,000, others might get as much as $2,500.



Who puts the money on the line?

Read how banks help the shipping industry transport cargoes and travelers to and from every corner of the earth.

When goods move money moves. As a result, banking and shipping are inseparable. Here's why!

Today, shipping's men of action: the builders, owners, masters, chandlers and fitters are concerned with one thing—moving cargo and people quickly and safely to any port of call in the world. But to handle the complex money exchange involved in foreign trade, and to be sure of a ready source of funds for any operating contingency, both shipping men and shippers "sign on" the bankers.

Money moves ships

To begin with, bank loans help finance the operation of every type of merchant ship sailing the high seas or plying the nation's inland waterways.

Most important, bank loans finance cargoes to and from the markets of the world—and even provide quick cash for tariff charges. Banks arrange for the fast transfer of money to shipping agents, arrange for payment of toll charges through the Panama and Suez Canals, and in many other ways help speed the passage of ships and the movement of goods.

How you benefit

Even if you never set foot on a gangplank, you inevitably benefit from the millions of dollars banks pilot directly and indirectly through the shipping industry. This is so because wherever and whenever banks put a community's idle money to work, men and women work, too. As a result, money moves and circulates, thereby helping to stabilize the whole economy and maintain a high standard of living.

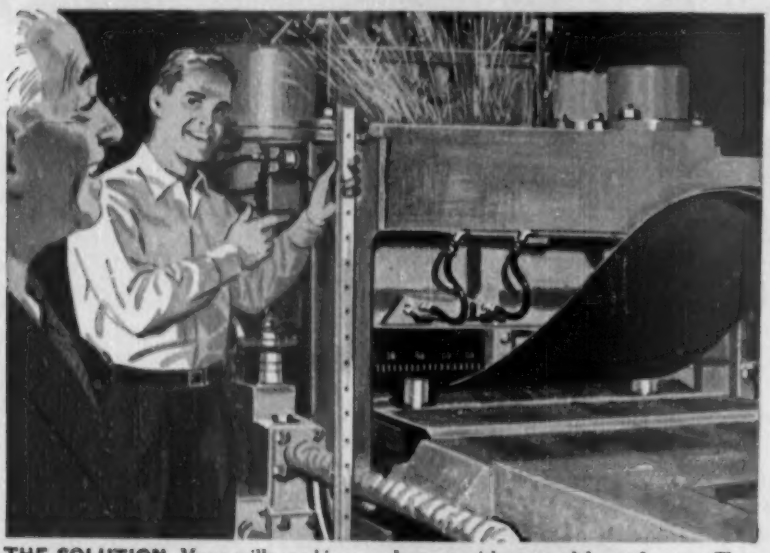
The Chase National Bank, first in loans to American industry, is proud of banking's contribution to the progress of our country.

• • •

The CHASE National Bank
OF THE CITY OF NEW YORK
(Member Federal Deposit Insurance Corporation)

If maintenance is your problem
BERYLLIUM COPPER MAY SOLVE IT

THE PROBLEM. Massive flash welders like this are the key to mile-a-minute production of steel strip. They join wide coils together so that they may be continuously fed into the pickling operation. Welders used to be equipped with solid dies made of various electrode materials, but the results were far from satisfactory. The dies picked up flash, and required frequent dressing. They wore rapidly or even fractured under the heavy pounding. Result: heavy maintenance costs, excessive downtime, lowered production.



THE SOLUTION. Many mills, seeking a way to minimize such interruptions and their bad effect on over-all operations, have now redesigned their flash welder dies. The solid die has been replaced by an assembly which uses a fitted insert or electrode made of tough wrought Berylco beryllium copper. The Berylco inserts are capable of taking heavy punishment and do not fracture. They wear better. Flash adherence is reduced, and thus dressings are less frequent. Maintenance costs are down, production is up, and with it all welds are smoother and sounder. Only Berylco, with its combination of electrical conductivity and ruggedness, could have made such results possible.

THIS IS A TYPICAL ILLUSTRATION of Berylco's ability to cut maintenance costs to the bone. The same success might be cited in such products as business machines and home appliances, where beryllium copper parts, large and small, assure continuous customer satisfaction and eliminate expensive service calls. Plan now to build service-free performance into your product with Berylco. For sample material or engineering help, write THE BERYLLIUM CORPORATION, Dept. 4B, Reading 20, Pa.

Tomorrow's products are planned today—with Berylco beryllium copper

They Shun Us

That's what railroads say of job-seeking college graduates. Roads and educators huddled over the problem.

Last week, executives from 20 railroads and educators from 20 colleges and universities sat down for a conference at Ann Arbor, home of the University of Michigan. The railroaders had a problem they wanted to talk over.

Why, they asked, don't college graduates want to work for the railroads?

The question has been nagging the industry more and more in the past few years. The Ann Arbor session, jointly sponsored by the university and the Michigan Railroads Assn., is one of several recent attempts to come to grips with it.

• **The Barbed Wire**—The railroads certainly have no corner on the problem of attracting good, new men of potential management quality. But the problem hits the railroads harder than most other big industries, for these reasons:

• Starting pay is low. One executive at the conference admitted his road's training program offers a starting salary equivalent to that of a janitor, or what a man could get right after high school.

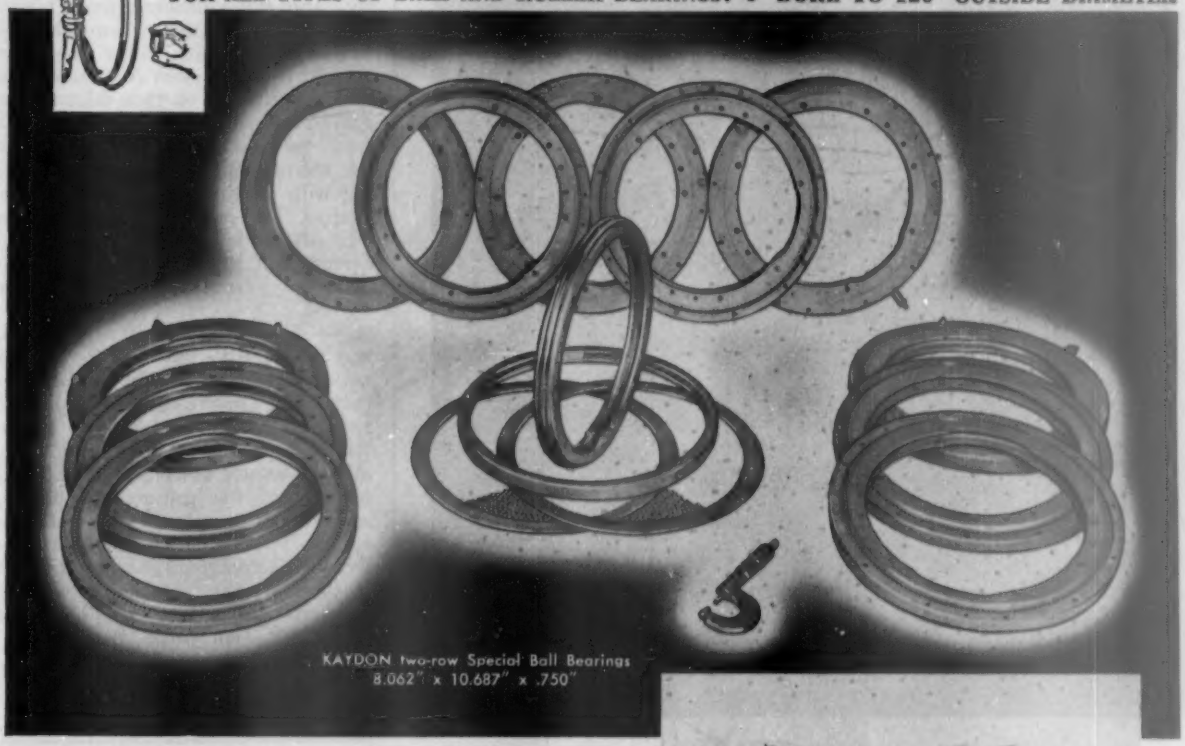
• The railroads are unionized from top to bottom, including supervisory personnel in nearly all categories, and chief clerks (the railroad equivalent of an office manager). One railroader complains: "Say you recruit a graduate of a top accounting school for your accounting department. You can't give him either rank or pay commensurate with his rating. He has to be a union member at the bottom of the seniority list." Even in the three departments that feel little direct effect of the unionization—law, engineering, and traffic—the pay is low.

• Competition from rapidly growing glamorous industries—electronics, chemicals, aircraft, advertising—is tough. Most of these industries pay high salaries to graduates, have no union involvement.

• **No Answers**—The railroaders can recognize the reasons behind their problem, but they can't see any ready answers. They say their financial position rules out paying new men more. As for advancement, the roads feel a man has to have "a thorough knowledge of railroading" before he can move up. There's little the railroads can do about the union situation; the brotherhoods are well entrenched. Nor, railroaders feel, is there much they can do to glamorize railroading more than it

Contact KAYDON of Muskegon

FOR ALL TYPES OF BALL AND ROLLER BEARINGS: 4" BORE TO 120" OUTSIDE DIAMETER



KAYDON two-row Special Ball Bearings
8.062" x 10.687" x .750"

Dependable Life-Savers ...KAYDON-bearinged Piasecki HELICOPTERS

CONTROL movements of Piasecki HUP Helicopters . . . life-savers of the air . . . are transmitted to the spinning rotor blade assemblies by means of a swash plate that moves on unique two-row KAYDON Special Ball Bearings.

Control of the helicopter is obtained by the movement of its rotor blades. Each blade can move in six different directions while they are rotating. Thus the mechanism responsible for control movements is complex, important, and it demands the utmost in bearing-precision.

KAYDON met the challenge of this intricate bearing-problem with these special two-row, thin section, 8.062" x 10.687" x .750" ball bearings. Similarly, KAYDON cooperates with designers of many types of precision equipment to achieve their objectives.

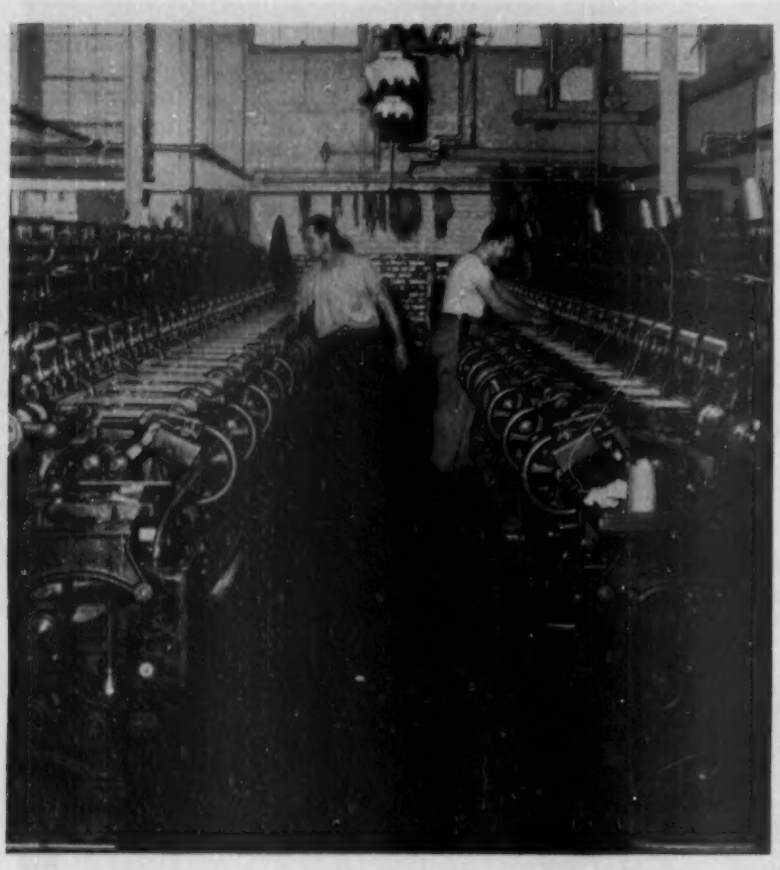
We specialize in large, thin-section, lightweight precision bearings for Aircraft, Automotive and Industrial Equipment

KAYDON Types of Standard and Special Bearings:
Spherical Roller • Taper Roller • Ball Radial • Ball Thrust • Roller Radial • Roller Thrust • Bi-Angular Bearings

THE KAYDON ENGINEERING CORP.

MUSKEGON • MICHIGAN

PRECISION BALL AND ROLLER BEARINGS



WHEN MEN AND MACHINES WORK HARMONIOUSLY TOGETHER

— the result is maximum productivity with lowest cost.

And that type of teamwork — effectively using machines as partners rather than competitors — is one of the distinctive traits of North Carolina's manpower.

Too, North Carolina's men and women are easily trained in the specific skills required by new jobs, as illustrated by this statement from a Western Electric official:

"We knew when we came to North Carolina there would be much training involved and we were concerned about how rapidly the people here would adjust to our work. We were agreeably surprised, however, to find the training requirement to be less than half what we expected, showing how adaptable the people are."

Cooperative, trainable labor is important — but it is just one of the many sound reasons why industries are moving to and expanding in North Carolina. For a realistic appraisal of the State's place in your industry's plans—

Telephone or write

Ben E. Douglas, Director
Department of
Conservation and Development
Raleigh, N. C.

Friendly North Carolina
Where Industry Prospers

has already been glamorized historically.

The educators had no quick solutions to these problems, which seem to be part of the basic make-up of the industry. And the railroaders weren't particularly disappointed when solutions weren't forthcoming. What they were actually trying to do at Ann Arbor was to focus attention on their dilemma, to get some sympathy and cooperation from the educators. They hope that the solution might lie, not in tampering with the basic economics of railroading, but in arousing undergraduates' interest in rail transportation—say, through specialty courses in traffic management. Few such courses are now offered.

• **No Dice**—The educators listened, and they weren't enthusiastic. A full railroading curriculum would hardly pay them. They might add a sprinkling of specialty courses, particularly if the railroads give them some help. But, as one educator observed: "They'll still be left with low pay and the unions, and those appear to be the real difficulties. You can hardly blame a youngster for keeping his head out of a wringer like that, no matter what it promises him in later life. There are simply too many other good offers."

MANAGEMENT BRIEFS

Retirement work for Hotpoint employees now gets an advance boost through the company's product service training program. Older workers may take off-hours courses where they learn to service appliances for Hotpoint dealers on a part-time basis, after they retire.

•

Medical information—much of it on executives—accumulated over the years by Life Extension Examiners, is going to be used as part of a major preventive medicine project. This week the group announced formation of the nonprofit Life Extension Foundation to handle the work.

•

Secret suit: Minnesota Mining & Mfg., maker of scotch tape, is suing Technical Tape Corp., of New York, for $1-million, claiming the latter hired away a 3-M chemist who carried with him trade secrets that were used to harm 3-M's business. The case is now before a New York Supreme Court Justice.

•

Illinois Central's board voted a stock option plan for 100 key personnel whereby each man can buy up to 10,000 shares, beginning in February, 1956, at about $88 a share. The plan, which needs stockholder and ICC approval, is one of the few of its type in the railroad industry.

ALCOA Aluminas are remarkably versatile . . . sort of "Jack-of-all-Trades" for many commercial processes. And hard workers they are, too—increasing production, improving quality, reducing costs wherever they're put to work. More than likely one of these ALCOA Aluminas can improve *your* process, product and profits:

Activated® Alumina, long known as the old reliable desiccant, is also widely used as a catalyst, catalyst carrier, chromatographic agent and for maintenance of transformer and lubricating oils.

Calcined Alumina has long been used as an abrasive and as a major ingredient in high-temperature refractories, electrical insulators and other ceramic products.

Tabular Alumina, almost diamond-hard, is used in heat transfer operations, refractory bodies, spark plug insulators, thread guides and grinding balls.

Hydrated Alumina is used in the production of water-treating compounds, glass, catalysts and as an ingredient in rubber, plastics, cosmetics and paper coatings.

For information and samples, call your nearest ALCOA sales office or write ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 700-B Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA CHEMICALS

ALUMINUM COMPANY OF AMERICA

Complete Starch of Business Week are

In an effort to provide advertisers and agencies with more factual information with which to evaluate the readership of their advertising, Business Week has engaged Daniel Starch and Staff to survey every issue during 1954. These surveys, conducted by personal interviews among Business Week subscribers, are made available by the Starch organization to advertisers and agencies on a regular subscription or per-copy basis.

An Exclusive Business Week Service

Business Week alone among the general-business magazines provides advertisers the opportunity to study complete Starch reports in order to measure the readership of their own and other advertisements in its pages.

YOU ADVERTISE IN BUSINESS

Reports on every issue now available to advertisers

This continuing program was instituted five years ago by Business Week as a contribution to the better understanding of advertising appeals, as well as layout and copy techniques. The expanded program for 1954 assures you of our continuing determination to help further this understanding by every available means.

BUSINESS WEEK

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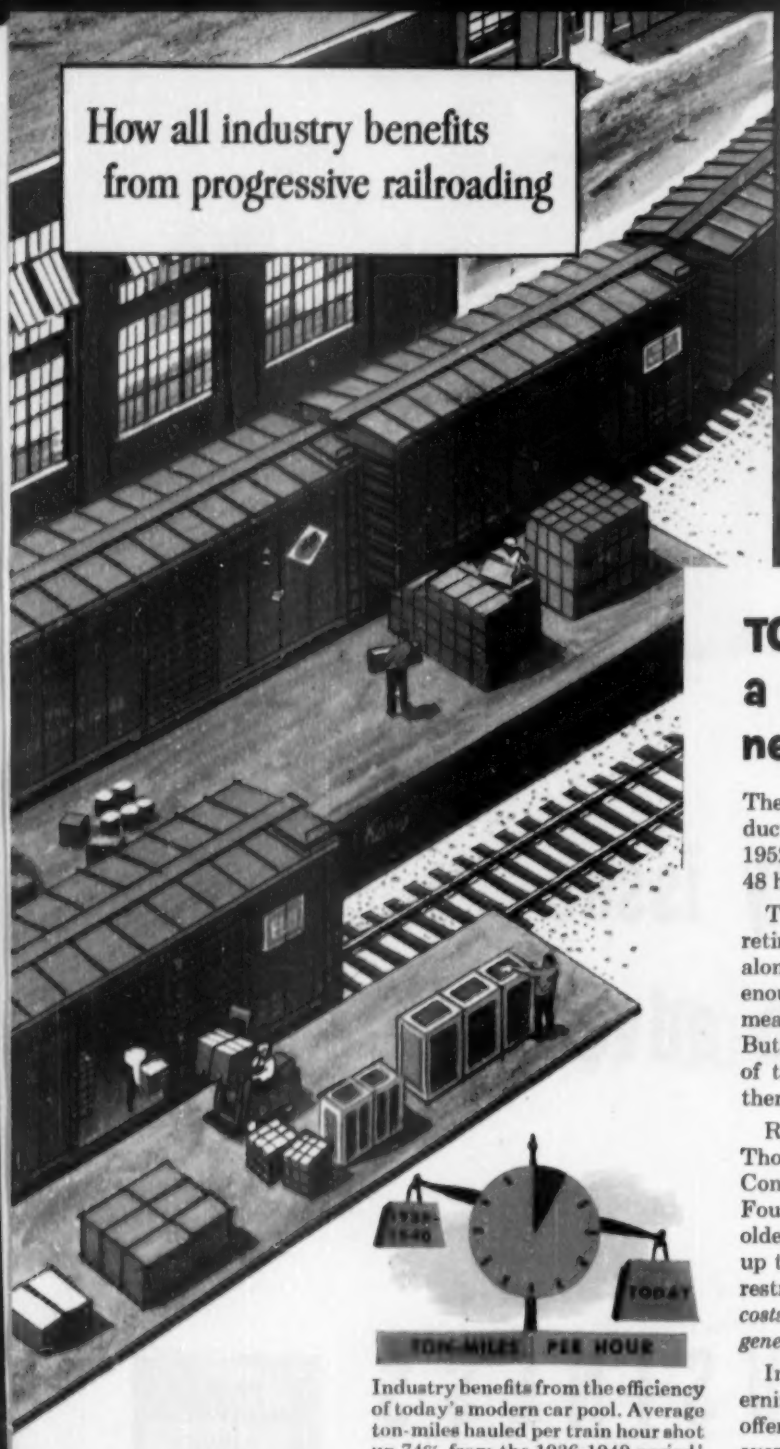
WEEK WHEN YOU WANT TO INFLUENCE MANAGEMENT MEN

How all industry benefits from progressive railroading



Industry benefits from the efficiency of today's modern car pool. Average ton-miles hauled per train hour shot up 74% from the 1936-1940 period!

TODAY... a freight car is nearer your telephone

The last two years have seen a spectacular reduction in freight car "shortage" reports. In 1952, the cases where shippers waited more than 48 hours for a car were 84% fewer than in 1950!

To provide this improved service, railroads retired over 115,000 old cars in '51 and '52 alone; replaced them with 155,147 new cars—enough to form a train 1,320 miles long! It meant a whopping investment of $1¼ *billion*. But, modern cars permit better *utilization*, one of the many reasons why a phone call brings them to your loading dock faster.

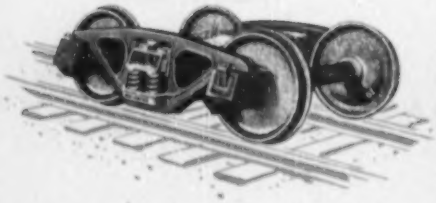
Railroads are also modernizing existing cars. Thousands are now equipped with the "Ride-Control® Package," developed by American Steel Foundries to replace the hard-riding springs on older cars. Package installations bring these cars up to modern riding standards, suitable for unrestricted use at unrestricted speeds. *All this at costs that measure up to the economic realities of general repairs programs.*

In short, a constantly replenished and modernized car pool is another reason why railroads offer better freight service at a bigger value than ever before.

American Steel Foundries

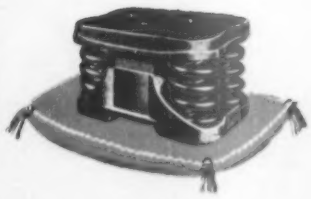
World's largest producers of railroad running gear

Executive Offices: Wrigley Building, Chicago 11



New freight cars ride smoothly at passenger-train speeds, on ASF Ride-Control® Trucks . . . specified on more new cars than all other freight car trucks combined!

And now the Ride-Control Packages are being used to modernize existing cars—*at realistic costs*. Recent tests prove reductions in lading damage index of over 90%.



Home Heating Systems . . .	Have These Advantages . . .	And These Limitations . . .
Self-Circulating Types		
HOT AIR		
As air is warmed in the furnace, it rises and flows through leader pipes to registers in the rooms.	Provides quick heat. Requires no motors or electrical connections other than those required on an automatic burner.	Best adapted to houses with a compact floor plan, since pipes should be as short as possible. Not suited to basementless houses since furnace must be below the level of rooms to be heated.
HOT WATER		
Water is heated in the boiler, rising through supply pipes to radiators, convectors, or baseboard units in the rooms. Cooled water flows downward through return pipes to the bottom of the boiler.	Requires few special fittings, no motors or electrical connections other than those required on an automatic burner. Supplies year-round hot water.	Not recommended for basementless homes. Requires fairly large supply and return mains to reduce friction, since circulation of water is by gravity.
STEAM		
Steam is generated in the boiler and rises to room heating units. It condenses in the radiators and forms water which is returned to the boiler.	No motors or electrical connections other than those required on an automatic burner.	Seldom used in basementless houses. Radiator temperature cannot be varied. Valve must be entirely off or on, to prevent water from collecting in convectors or radiators.
Forced Types		
HOT AIR		
Air is forced by a blower through ducts to registers in the rooms. The blower draws the cooler air from the rooms down to the furnace through return-air ducts.	Adaptable to basementless houses as well as large structures. Requires less space than gravity systems. Humidifier can add moisture, filter air. Adaptable to central air conditioning.	Costs more to install than gravity system because it requires blower and return ducts.
HOT WATER		
Water is heated in the boiler and forced through pipes to room heating units. A pump at the boiler keeps the water circulating.	Can be used to heat domestic water year round. Adaptable to basementless houses.	Pump is motor-driven, requires electrical connections. Initial cost is higher than gravity systems because of circulating pump, but saving on smaller size of pipe partially offsets this expense.
Panel Types		
HOT AIR		
Air is heated in the furnace and passes through ducts or channels concealed in the wall, ceiling, or floor.	No registers are necessary, although they are sometimes used to introduce some warm air directly into the room. Can be used in basementless houses.	Subject to overheating and underheating in houses with large glass areas. Has definite temperature limitations (about 85F in floors, 120F in walls or ceiling).
HOT WATER		
Water is heated in the boiler and circulated through coils of pipe concealed in sections of the floor, wall, or ceiling.	No radiators, convectors, or baseboard units are necessary. Panels are indistinguishable from other sections of floor, walls, or ceiling. Can be used in basementless houses.	Has to be designed as structural part of house. Subject to overheating and underheating in houses with large glass areas. Has same temperature limitations as above. Expensive to repair.
ELECTRIC		
Electric current is passed through wires or other conductors in rubber, glass, metal panels to produce heat that is radiated to the room.	Can be used in basementless houses or as supplemental heating in homes with other types of heating plant.	In many areas, high cost of electricity makes it uneconomical to use this system as sole heating source.

Panel Heat Warms To its Work

The overwhelming majority of U.S. homes are heated by the first five systems shown in the chart. They are the conventional types for conventional homes. Heating engineers have spent years documenting their performance and developing comfort curves that tell them where to put radiators and registers, how much insulation to use, and what fuel consumption will be. The technology behind these systems is very solid.

The three forms of panel heating at the bottom of the chart are another story. One heating engineer describes panel heating as a baby that learned to run before it could crawl. Practically unknown before the war, it now accounts for perhaps 12% of the huge home-heating market.

Its growth has been so rapid that detailed performance research lagged far behind. Installations had to be made by ear, unaided by the many basic factors of design and operation that only comprehensive testing could establish. Radiant electric panels encountered another obstacle as well: Electric utilities took a very dim view of them.

• **Catching Up**—But the picture's changing. The gaps are slowly being filled in. Panel heating technology is catching up with panel heating sales. Once the two get together, growth will probably be even faster.

Late last month at the annual meeting of American Society of Heating & Ventilating Engineers in Houston, Tex., some of the long-awaited technical data came out of the laboratory. One report detailed findings on heat

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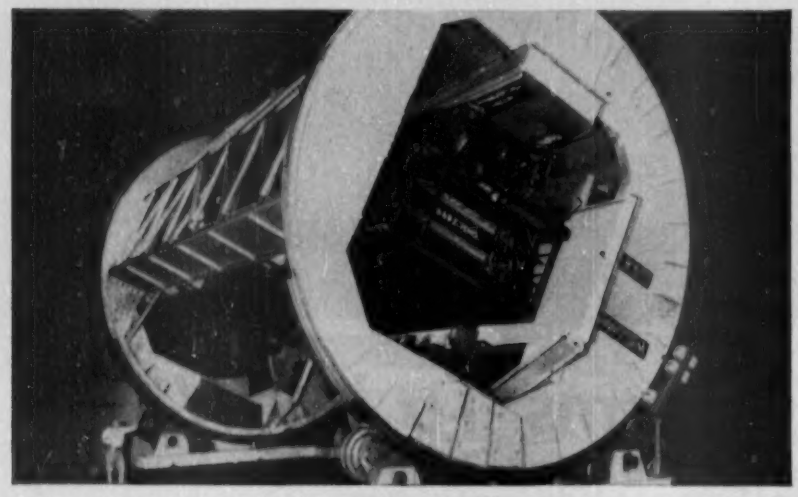

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exchange between test panels and surroundings. This fills in a gap in predicting comfort in a room. A cold wall or a cold window can mean that you'll have to have a much higher room temperature for the same comfort as you would with warmer walls and lower temperature.

The same paper also discussed the effectiveness of several methods of insulation. One interesting conclusion: The fuel savings resulting from use of insulation under the entire floor slab were too small to warrant the increased cost over edge insulation.

• **Obstructions**—Another gap filled in at the meeting concerned the effect of furniture and floor coverings on the efficiency of panel heating. One of the first things a wife wants to know about a panel heated house is how a wall-to-wall carpet is going to affect her fuel bill.

Now heating engineers can give her an answer. Furniture has no great bearing on panel heating, either ceiling or floor. Floor coverings present no problem that careful selection, use of separate coils or circuits for each room, and closer spacing of tubes could not overcome.

• **Electricity**—In just the last few months, electrical panels have emerged from the electric utilities' doghouse. Outright opposition and occasional tepid acceptance have been largely replaced by approval or at least nonresistance. For example, American Gas & Electric Co., a major holding company whose operating firms cover Ohio, West Virginia, Kentucky, Illinois, and Indiana, recently passed the word to its sales people to promote electrical heating wherever possible.

• **More Power**—There seem to be three big reasons for the switch:

• Utilities now have excess power to sell, whereas formerly they were still pushing up their capacity.

• The growth of air conditioning has caused some companies to create extra summer capacity and they now welcome a new winter market to balance it.

• Performance data studies by several utilities have shown that there are strong benefits from electrical heating.

The reasons for the rapid growth of panel heating in the last few years all go back to the changing living patterns that produced the postwar house (BW—Feb.21'53,p136). This house was generally a one-story job, without a basement, and with at least one large picture window. Since there is no basement and space is at a premium in living areas, heating systems have had to be a lot more compact than they used to be. The inexpensive but rather bulky gravity or self-circulating systems just don't fill the bill.

The forced air and water systems have

What the WELL DRESSED PLANT will wear in '54

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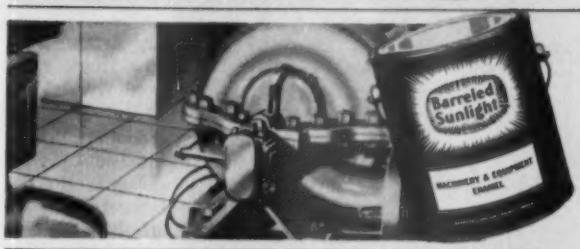
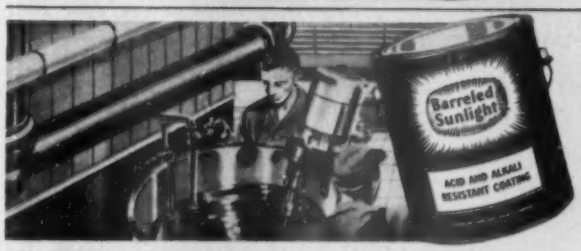
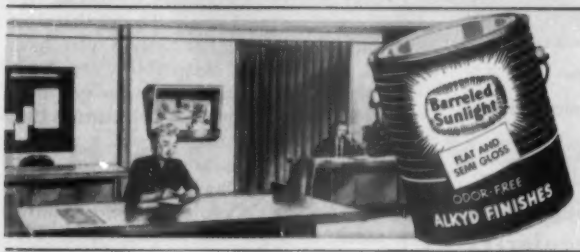


On Machinery and Equipment. For improved appearance, efficiency and safety . . . Barreled Sunlight Machinery & Equipment Enamel and Barreled Sunlight Safety and Piping Enamels. Easy to apply by brush or spray . . . dry *fast* to a smooth, tough surface that is extremely durable and resistant to oils and greases. Modern, industry-approved colors for "contrast painting" of machinery and clear identification of piping contents, plant hazards and safety equipment.



In Trouble Spots. Where acids, alkalis, fumes, moisture, mildew and other destructive agents make maintenance a tough and costly problem . . . specialized protective finishes such as Barreled Sunlight Acid & Alkali Resistant Coating and Mildew Resistant Gloss do the job where other paints fail. A trained Barreled Sunlight representative is at your service without obligation to help you lick these problems on the basis of actual "on-the-wall" tests.



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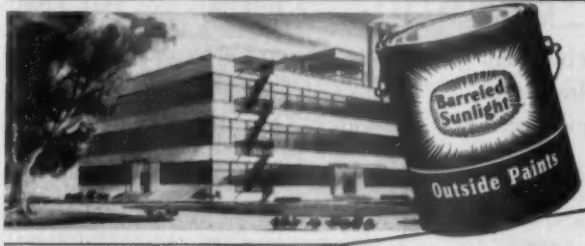

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". . . the big picture window causes temperatures to fluctuate widely . . ."

PANEL HEAT starts on p. 93

made the switch, but with some modifications. Bulky, unsightly radiators have been hidden. Furnaces have been prettied up to take their place alongside the automatic washer. Noisy circulating pumps and fans have been quieted.

But panels cut their teeth on the new house, and are consequently made-to-order for it.

Controls of the heating system have also been reworked. The single thermostat in the living room worked for a compact prewar house, but it is not adequate for an elongated ranch house. The big picture window causes temperatures to fluctuate widely in the living room. You don't want bedroom temperatures to fluctuate at the whim of the living room so you zone your house. Each room is heated individually, based on what the temperature is doing outside.

• **Summer, Too**—Air conditioning has also come of age in the last few years, further complicating the heating picture. If you built in 1939, air conditioning probably didn't enter your mind as you went over details with your builder and architect. Today, it's a major consideration. To get the most out of your heating system you have to consider its adaptability to year-round use. There is a major gap here in the technology of panel heating that needs a lot of study.

Panel heating now holds the spotlight. It will retain it for the next few years as engineers debate the relative merits of floor, wall, ceiling types. Perhaps the best indication that panels have come of age is the fact that other more advanced systems are coming over the horizon.

Proponents of the heat pump (BW —Aug.29'53,p110) are saying that it will be the dominant form of year-round heating and cooling within the next 10 years.

As with panels, engineers want more performance data. A detailed report published by ASHVE in Heating, Plumbing & Air Conditioning in November, 1953, gave some cost data on the Equitable Building in Portland Ore., which made the experts take a second look. Total costs, including salaries and other chargeable items, were 2.2¢ per sq. ft. for heating, 9.1¢ for cooling, or a total of 11.3¢. Heating with district steam would have cost 6.38 times as much, oil 4.44 times, in the year studied.

• **The Sun**—Still further in the future

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Fenestra Door-Frame-Hardware Units in the Robert N. Mandeville High School, Flint, Mich. Architect: Bennett & Straight, Dearborn. Contractor: Karl B. Foster, Flint.

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For strong, solid quality at unusually low cost, check on Fenestra Doors—there's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For pictures and details, write to Detroit Steel Products Company, Dept. BW-2, 3425 Griffin Street, Detroit 11, Mich. *®

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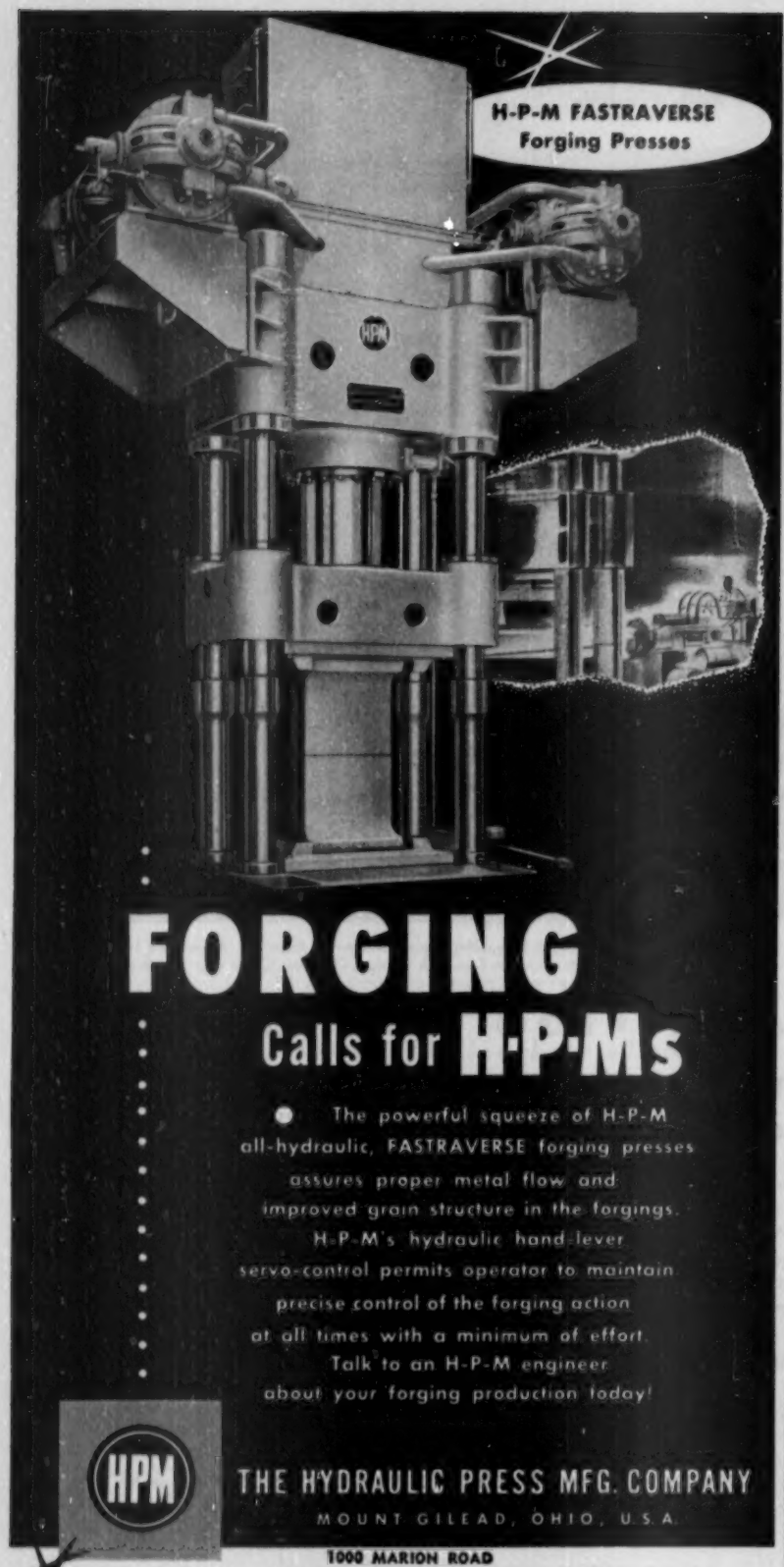
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is solar heating. It has had a lot of attention from people concerned with depletion of fuel resources. But the design of a house utilizing this type of heating presents many specialized problems. The heat collector would be enormous for homes in northern parts of the country. The house would have to be long and narrow, have no close neighbors. Since retention of the heat is difficult, the biggest possibilities for the method seem to be to supplement a more conventional unit on good days.

Future Fighter

Navy's vertical take-off fighter gets the spotlight prematurely through an accidental news leak.

A sharp-eyed motorist driving along San Diego's Pacific Highway last week noticed something strange going on at Consolidated Vultee Aircraft Corp.'s test ground, stopped for a look through the fence. Other motorists pulled up and watched as a group of Convair workers wheeled out a tall, girdered test stand. Protruding from its top was a slender missile-shaped nose with two large propellers on its tip.

It was the public's first peek at the Navy's vertical take-off fighter, the Convair FY-1. It wasn't much of a peek but it was enough to shake more information about the plane from sources that had kept a tight lip from the early days of experimentation.

• **What It Can Do**—This much now is known: Both Convair and Lockheed Aircraft Corp. are working on separate planes for the VTO (vertical take-off) project. Their aim is to develop a plane that can take off straight up, then curve over—missile-fashion—and fly like a standard plane and land vertically. They want a plane that can be controlled either by the pilot or automatically from the ground.

This will probably be the Navy's most versatile plane, able to operate from any carrier, missile cruiser, or submarine. The plane will be maneuverable, able to fight. It will also be useful for reconnaissance, since with propellers topside it can "back down" and hover over an area in a fixed spot.

As the plane changes positions, the pilot's seat pivots so he sits parallel to the ground at all times. When the plane shoots up, he faces the floor; as it levels off, he looks toward the nose.

Both VTO planes—Lockheed's and Convair's—are powered by Allison T40 turboprop engines. Each has a pair of contra-rotating propellers, which handle both take-off and level flight. Right now, both planes must have rocket

Do top executives delegate too much responsibility?

CONSCIOUSLY, most key men probably never allow important responsibilities to get out of their own hands. But experience shows that *unconsciously* they often do. And in one *particular* matter the results can really be disastrous.

Take the matter of your firm's accounts receivable and other business records, for instance. Whose responsibility is it to see about protection for them? It had better be *yours*. For entrusting those records to someone who doesn't know an old safe can *incinerate* records might be the *end* of your business. Any safe without the Underwriters' Laboratories, Inc. label is *dangerous* if fire starts.

And being located in a fireproof building doesn't lessen the danger one bit. Fireproof buildings just *wall-in* an office fire. Make it *hotter!*

But, you've got fire insurance? Fine. But don't count on it to repay all your losses, unless you can provide "proof-of-loss within 60 days"—which takes *records*, you know.

Better delegate this—to yourself!

Experience shows that 43 out of 100 firms that lose their records in a fire never reopen. And the others have years of tough sledding just to regain normalcy.

Write yourself a memo, today, to check the risk you've been taking. And find out how little it costs to get the world's best, and most modern protection—a new Mosler "400" Series "A" Label record safe. Consult classified telephone directory for name of the Mosler dealer in your city. Stop in. See the exclusive Mosler styling and protection features. Or mail coupon, now, for FREE FIRE "DANGERater."

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assistance to get off the ground, but a new engine that's on the drawing boards will eliminate the rockets.

• **Development Work**—The Navy isn't the only group interested in VTO. The Air Force is working on a project, too, according to Aviation Week, a McGraw-Hill publication. It's taking a different approach, however, using turbojet engines instead of turboprops. The British have also been experimenting with VTO in recent months. And reports have leaked out of the Soviet Union that similar work is going on there, but very little is known about it.

The biggest obstacle to VTO progress has been engine design. Any VTO craft must be powered with an engine that has a high ratio of power to weight. The first crack in the wall came last spring when the National Advisory Commission for Aeronautics announced that new engines—both turboprop and turbojet—had come along that brought VTO within reach.

These high-powered, lightweight engines, however, don't mean that the VTO plane will be in the air this year, or even next. There are still other hurdles. There's the difficulty of control at low speeds; Aviation Week says that same modification of the finlike carbon vanes, which gave the old German V-2 rocket more stability, might be the answer here. Accomplishing automatically controlled flight—which is one of the main goals in all aircraft development these days—will present another tough problem.

Developers may have to start from scratch with an entirely new batch of electronic equipment before a VTO plane can be controlled from the ground.

Largest Bulb Yet

This 75,000-watt incandescent lamp bulb was switched on last week in New York. The bulb was developed by General Electric as a feature of the electrical industry's observance of the 75th anniversary of Thomas Edison's most famous invention, and uses enough electric energy to light 83 homes. Twenty-three of the bulbs could light a big-league baseball park.

An Emperor's Luxury sweetens your coffee

Back around 500 A.D., a Chinese Emperor sent all the way to India for stalks of sugar cane. His subjects then made crude sugar to please the royal palate. Once a rarity, today sugar is a staple in even the most modest pantry. And it's a far better product than in ancient times.

To produce sparkling white crystals, sugar refiners use Darco® activated carbon. This Atlas product removes color and taste impurities from sugar syrup. Darco improves other products, too, such as vegetable oils, chemicals, beer and dry-cleaning solutions.

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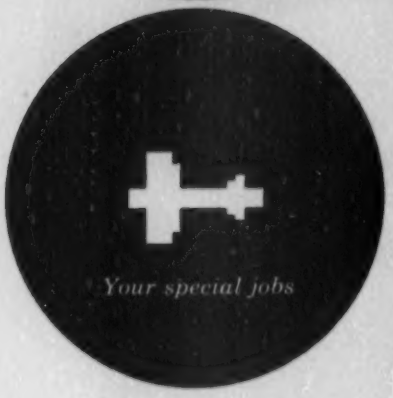

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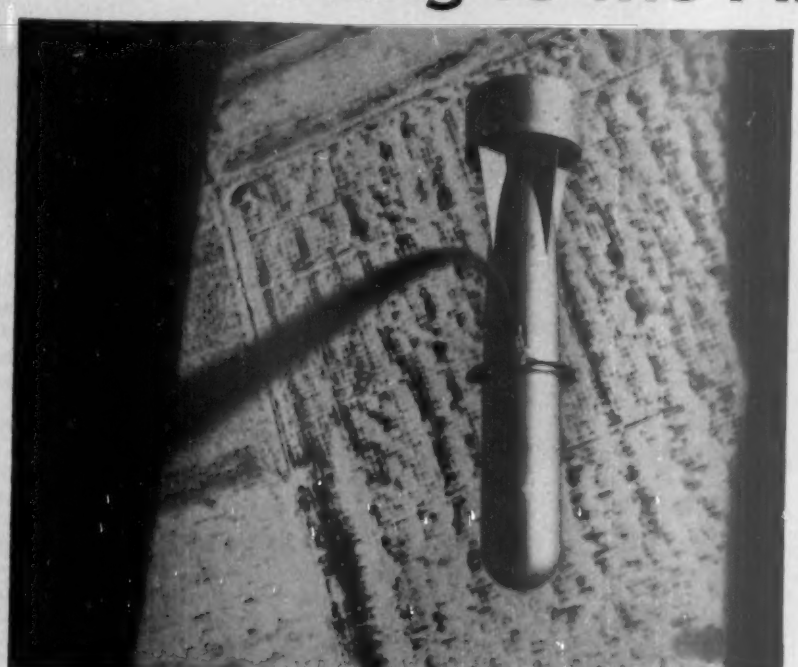
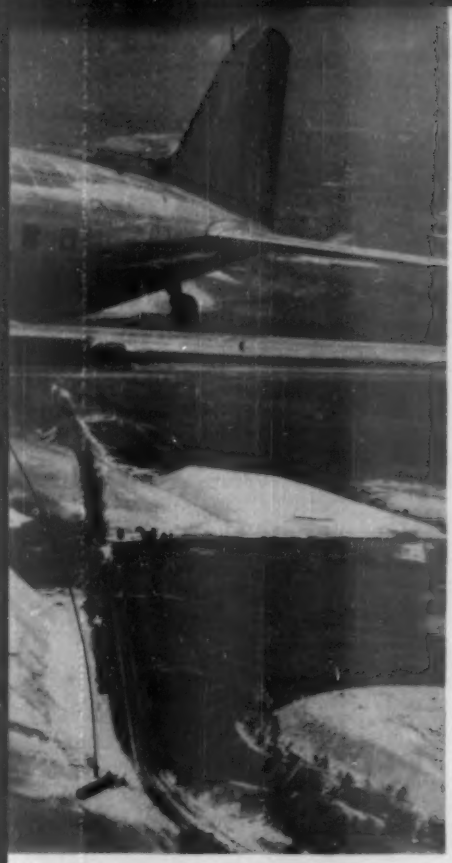
PROSPECTOR, NEW STYLE becomes airborne in speeded up search for new sources of minerals. This DC-3, surveying South African gold fields, dangles a bomb-shaped mag-

Taking to the Air



CREW'S-EYE VIEW of magnetometer trailed by plane over eastern Pennsylvania, where air survey helped pin-point rich new iron ore source for Bethlehem Steel Corp. The instrument is a commercial version of a wartime submarine detector.



netometer that locates ore deposits by magnetic variations. It's modern way of . . .

to Find Ore

Our known mineral resources, which seemed limitless a century ago, are being devoured at a fantastic clip. The 1952 Paley report put it this way: In dollar value we produced in 1900 about 15% more than we consumed; by 1950 we were consuming 9% more than we were producing; by 1975 this deficit may hit 20%.

That means a faster and faster race to find and open up new ore sites, new oil fields. To speed up the search, industry has turned to a war-developed airborne electronic device known as the magnetometer (pictures). All the big oil companies are up to their ears in magnetometer surveys. It has had a hand in practically all ore discoveries in Canada in the last year and a half.

• **What It Does**—The airborne magnetometer was developed by Gulf Oil Corp. and used during World War II to spot submarines. Since then, it has provided oil and mining companies with more geological data than they could have collected in 100 years by traditional prospecting methods. It has ferreted out deposits of iron, chromium, nickel, oil, asbestos.

The magnetometer measures variations in the earth's magnetic field. When most ores are formed in the earth, the mineral processes they go through also turn up a highly magnetic ore known as magnetite. A concentration of this ore causes a variation in the earth's magnetic field. The magnetometer, towed along by an airplane on a fixed course, picks up these variations.

The variations are plotted on an aerial photograph of the area, and lines of equal variation are connected. A strong magnetic area, with possibilities of a mineral deposit, shows up in closely spaced concentric circles.

The plane zips along at 2 mi. per min., but the plotting is precise and time-consuming: It may take an hour to plot out a mile. If the plane went off course or varied its altitude too much, it may have to resurvey some areas. Such things as intensity of the variation may require a ground check—and of course you have to go in and drill to confirm the find.

• **Big Find**—Bethlehem Steel Corp. located a rich iron ore deposit this way near Morgantown, Pa. Ground parties had been searching this general area since 1917, but their surveys left many gaps. Just on the basis of a magnetic map showing definite packing of contours in one area, property was bought and drilling started. For several weeks it looked like failure—no evidence of iron. But at 1,500 ft. the drillers struck ore yielding 60% to 70% iron that could be separated magnetically—one of the richest discoveries of recent years, and right under the noses of a dozen major mining concerns.

• **Business**—There are now three major companies in the business of supplying magnetometer surveys. Aero Service Corp. of Philadelphia is largest. Also working in all parts of the world are Fairchild Aerial Surveys, Inc., of Los Angeles, and Hunting Air Survey Group with headquarters in London.

Foreign work and oil surveys have got most of the publicity. Many surveys have been completed in the U. S. but little has been said for business security reasons.

Canada has been going all out on surveys. At a cost of about seven cents an acre, provincial governments have been able to open up thousands of square miles of wilderness. Liberia and Venezuela have tried magnetic surveys, and practically unexplored parts of Angola and Mozambique are getting a careful going-over. Oil companies are checking the ocean around the Bahamas and the Gulf Coast.

• **Radioactive**—Another airborne device, the scintillometer, locates radioactive ores. When it gives high readings, the area is marked for a further ground check with Geiger counters for today's prospector's gold—uranium.

Wouldn't be much harmony if everyone played as he pleased. Timing and team work are needed—in a band, a ball game, or a business. Stromberg equipment times every working minute accurately, keeps the business team together.

STROMBERG

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Keeps payroll time for thousands of firms. Complete in every detail and priced within reach of the smallest.

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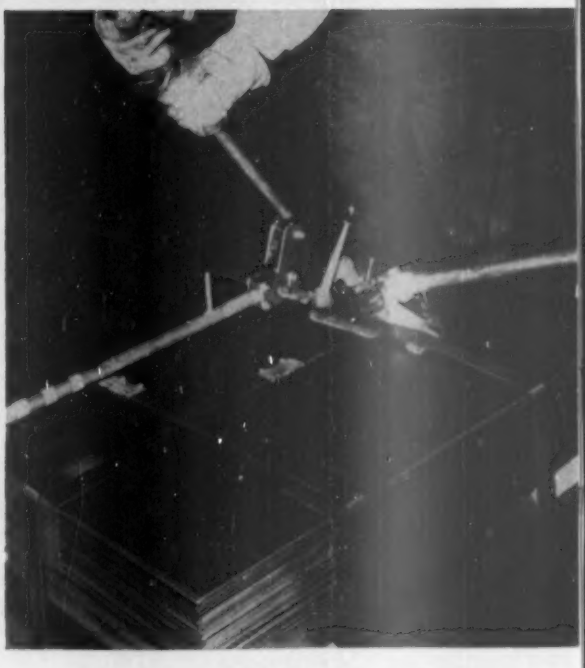
TIME CORPORATION

GT UNITED TIME — subsidiary of general time corp.
THOMASTON CONNECTICUT

TIME RECORDERS • TIME STAMPS
JOB RECORDERS • CLOCK SYSTEMS

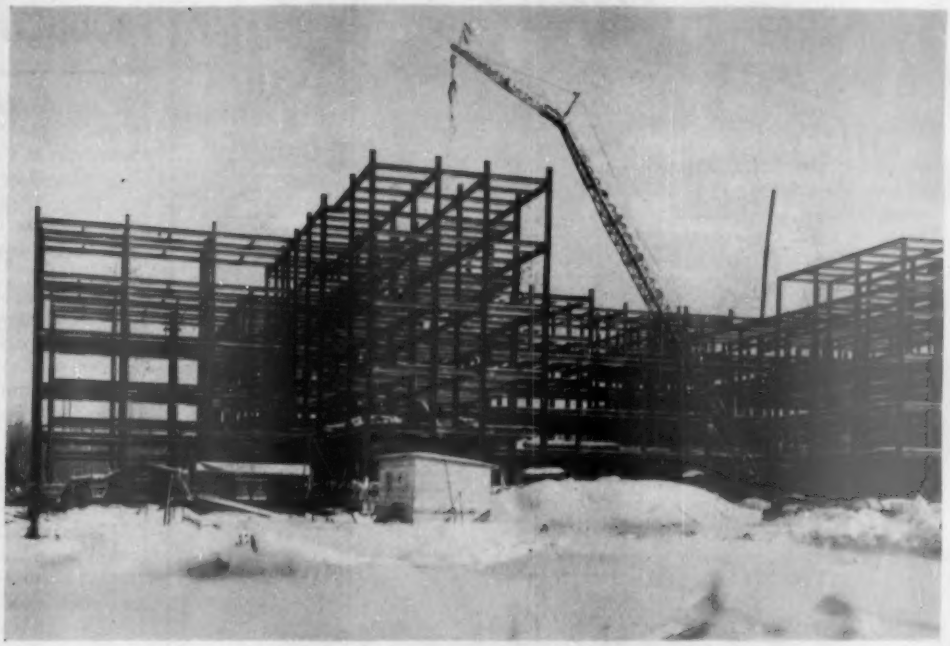
Only STEEL can do so many jobs

Anybody's Little Girl Can Lift 340 Pounds with the help of U·S·S American Quality Springs. The manufacturer of this overhead door prefers springs to counterweights for two reasons. First, because a spring gives 500 pounds of pull at 25% less cost. And second, because to open a spring-loaded door, you don't have to overcome the inertia of door plus weights. The manufacturer has been building these doors for 33 years and reports, "practically all original doors still have their original springs."

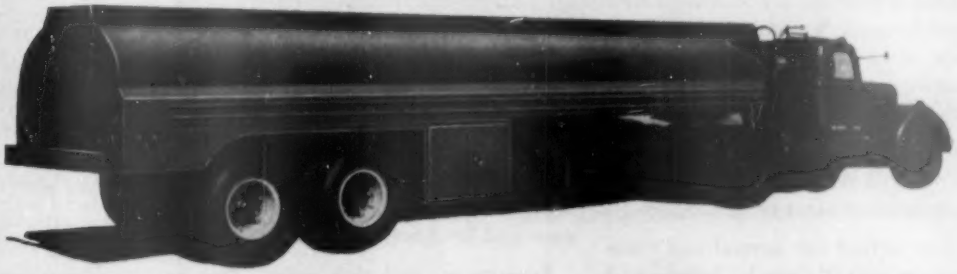


The Tie that Binds . . . and binds securely . . . for many a shipper is U·S·S Gerrard Steel Strapping. For every tying job, from bundling parcel post packages to reinforcing carload shipments, Gerrard Steel Strapping—round or flat—gives firm, secure protection. May be applied with either hand-operated or semi-automatic machines. Only steel can do so many jobs so well.

so well



Snow Job. The term "snow job" to G.I.'s means a combination of bluster, hot air and exaggeration. To U.S. Steel, it means a job like this VA Hospital in Minneapolis . . . an all-welded structural steel framework erected in the midst of a snowy, stormy Minnesota winter. Such "snow jobs" are added evidence of the fact that steel structures can be quickly and efficiently erected in any kind of weather.



Not Quite a Feather in the Breeze, but this gas tanker is far lighter because it was built with U·S·S COR-TEN High Strength Steel rather than ordinary steel. 932 lbs. lighter to be exact. By trimming off so much deadweight, the tanker can carry 155 more gallons of gas, resulting in appreciable saving on every trip it makes.

Midget Drives Giant. This midget generator can move a giant 300-ton pile driving rig along a railroad track at 20 miles per hour, drive the air brake compressor, operate the hammer, and furnish steam for the hoist—all on 75 gallons of oil per day. The "heart" of the midget is 561 feet of National Seamless Tubes, welded and cold-rolled into a coil that withstands a 1200 psi hydrostatic pressure test.

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UNITED STATES STEEL

This trade-mark is your guide to quality steel

For further information on any product mentioned in this advertisement, write United States Steel, 525 William Penn Place, Pittsburgh, Pa.

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OIL WELL SUPPLY . . TENNESSEE COAL & IRON . . UNITED STATES STEEL PRODUCTS . . UNITED STATES STEEL SUPPLY . . *Divisions of* UNITED STATES STEEL CORPORATION, PITTSBURGH
UNITED STATES STEEL HOMES, INC. · UNION SUPPLY COMPANY · UNITED STATES STEEL EXPORT COMPANY · UNIVERSAL ATLAS CEMENT COMPANY 4-51

Film purchase exposes

$23,200 Theft

(A true story based on Hartford File 121465)

About a year ago we took on a new bookkeeper. We were pushed for time so we put him to work without looking up his references.

Soon he began drawing company checks for his own use. At first they were small. But before a year was up, they totalled more than $23,200.

Just before our annual audit was due, he quit. Before he left he had bought $200 worth of movie film for which he paid with a company check. A call to us by the film supplier about a delivery slip-up led to our discovery of his embezzlements.

Before the police caught up with him he was 1200 miles away, and very little of our money was recovered. We might have had to stand the entire loss he caused but for one thing—our "Dishonesty, Disappearance and Destruction" insurance.

Because we had this policy, the Hartford Accident and Indemnity Company made good to us the full amount of our loss—$23,232.27.

No businessman ever knows when he may be faced by serious loss due to dishonesty, disappearance or destruction.

Under a "DDD" policy, you can be insured against losses of money, securities and other property due to dishonest or fraudulent acts by employees or others, or through theft, burglary and holdup. Forgery, or the alteration of outgoing checks, drafts or notes is likewise covered, as is destruction of money or securities by any cause.

Ask your Hartford Accident and Indemnity Agent, or your insurance broker, to explain in detail how a Hartford "DDD" policy can protect *you* and *your business*. See how little it costs in proportion to the coverage it provides.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company • *Hartford 15, Connecticut*

PRODUCTION BRIEFS

The atomic-powered automobile may be years away, but its possibility has researchers at Ford thinking about metals that must be developed to withstand the high temperatures. Research is going on now at the company's Dearborn laboratory.

•

Automation comes to acoustical tile: Owens-Corning Fiberglas Corp. has set up an automatic production line at its Newark (Ohio) plant. The line is designed to control tile dimensions to within 0.005-in., operate around-the-clock.

•

Cotton fabric of higher quality can be produced by using a new instrument that determines the degree of the raw cotton's tendency to tangle up in the fabricating process. It was developed by the Dept. of Textile Research at North Carolina State College, Raleigh.

•

A new material, designed to provide more durable patches on highway, has been developed at the Engineering Experiment Station, University of Arkansas, Fayetteville. It is a blend of naphtha, kerosene, diesel oil, and asphalt.

•

Porcelain enamel (BW—Feb.6'53,p126) showed up on another building exterior this week. Grumman Aircraft Engineering Corp.'s new administration building at Calverton, Long Island, is being faced with 3,300-sq. ft. of aluminum-porcelain panels from Seaporcel Metals, Inc.

•

A new defense contract for airframe components for the Martin B-47 night intruder bomber has been given to Hudson Motor Car Co. Hudson says the contract will sustain its defense production and employment into '55.

•

A coal-fired steam-electric plant with a 424,000-kw. capacity will be built at Dix River Dam, near Lexington, Ky. Kentucky Utilities Co. will operate it. The output will be enough to furnish power to 14 cities the size of Lexington. It will burn 1-million tons of coal per year.

•

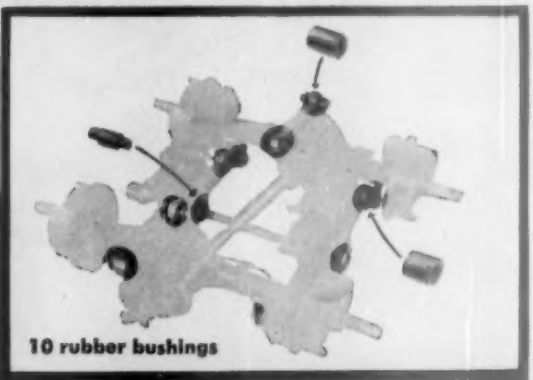
Air pollution solved: Aluminum Co. of America's $1.5-million air wash system at its Vancouver (Wash.) plant promises to get the company back in the community's good graces. Technicians from both Washington and Oregon State Colleges report, after a two-year study, that the plant is no longer a threat to livestock, because escaping air no longer contains damaging quantities of fluorine.

INTERNATIONAL LEADS AGAIN...

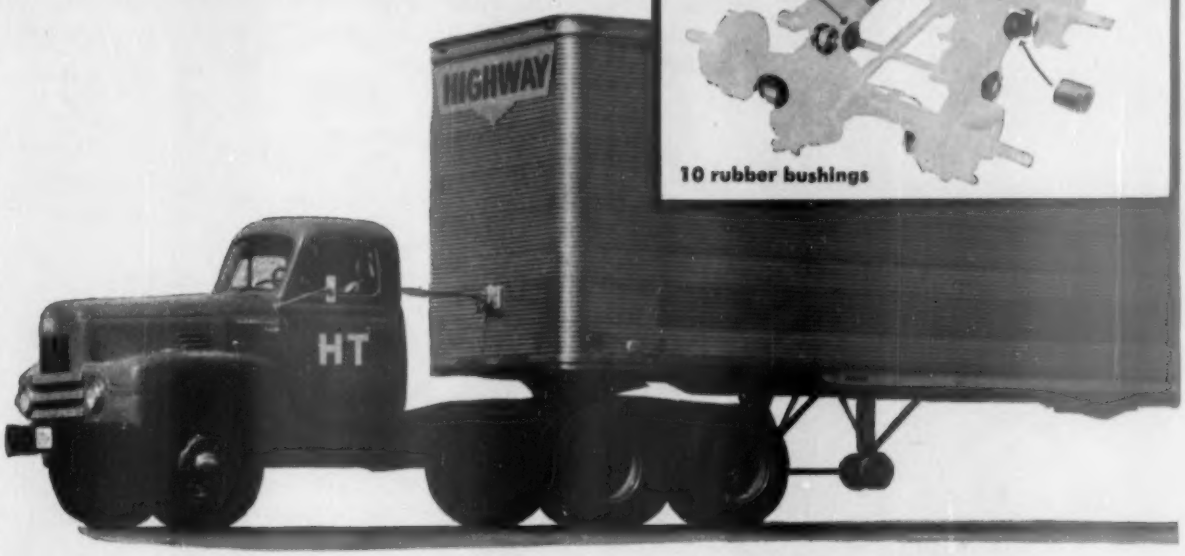
NEWEST, FINEST BOGIE

IN THE 6-WHEEL FIELD

The new INTERNATIONAL bogie provides a new exclusive torque arm design straddle mounted at axle and frame, for greatly increased strength, and new rubber bushings on torque arms, equalizing beams and radius rods for reduced road shock, and elimination of 10 lubrication points. A new self-contained brake and cylinder unit cuts servicing costs, offers greatly increased protection from damage in off-highway operation.



10 rubber bushings



Once again, INTERNATIONAL makes the big news in 6-wheel bogie design. Once again, the pioneer of 6-wheel development and 6-wheel sales leader for 19 straight years tops 'em all in features for efficiency, economy, and long life.

In today's INTERNATIONAL 6-wheelers you get everything that's new and everything that's best, plus such extra-value features as the famous, proved INTERNATIONAL power divider and third differential.

Ask your INTERNATIONAL Dealer or Branch for full facts . . . and a demonstration. You'll quickly see why —for off-the-road or over-the-highway—an INTERNATIONAL Truck with new INTERNATIONAL bogie is the world's best 6-wheel buy.

24 new 6-wheel models!

GVW ratings, 22,000 to 90,000 lbs. with new INTERNATIONAL bogie or trailing axle. Engines from 130 to 356 horsepower. Choice of gasoline or LPG power. Diesel engines available in models with GVW ratings of 30,000 lbs. and over. Transmissions, axle ratios for any needs. America's most complete truck line—170 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models.

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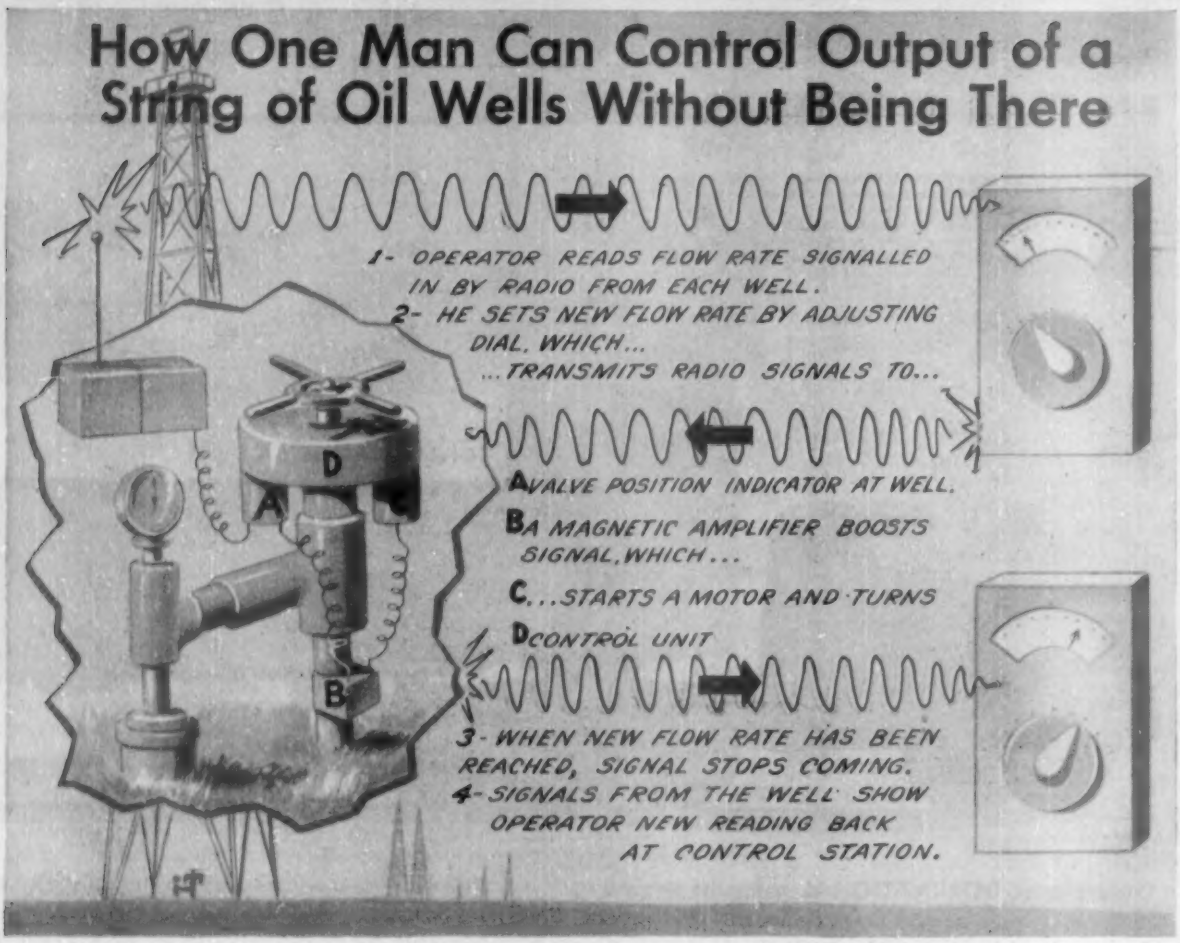
→ Get the News! Alex Dreier "Man on the Go," daily NBC Radio, sponsored by INTERNATIONAL Truck Dealers.

INTERNATIONAL® TRUCKS

"Standard of the Highway"


How One Man Can Control Output of a String of Oil Wells Without Being There
1- OPERATOR READS FLOW RATE SIGNALLED IN BY RADIO FROM EACH WELL.
2- HE SETS NEW FLOW RATE BY ADJUSTING DIAL, WHICH...
...TRANSMITS RADIO SIGNALS TO...
A VALVE POSITION INDICATOR AT WELL.
B A MAGNETIC AMPLIFIER BOOSTS SIGNAL, WHICH...
C...STARTS A MOTOR AND TURNS
D CONTROL UNIT
3- WHEN NEW FLOW RATE HAS BEEN REACHED, SIGNAL STOPS COMING.
4- SIGNALS FROM THE WELL SHOW OPERATOR NEW READING BACK AT CONTROL STATION.
A
B
D

Remote Control for an Oil Field

The day is coming soon when the flow of oil and gas from a sprawling field of wells will be controlled automatically from a station miles away.

The system that may help smooth out one of the few remaining rough spots in the oil extracting process will probably look like the sketch above. This network was developed by a young Houston electronics company—Magnetic Industries, Inc.

• **Experiments**—The oil industry has been toying with this kind of remote control for years. A few fields in the U.S. today have automatic systems in operation, but these allow for only partial control. The operator at a remote station can close a valve completely, or he can open it up. He can't control the rate of flow without making a two- or three-hour trip out to the well to change the valve setting.

Pneumatic systems have been tried, too. But these are expensive, for it costs a lot to pipe compressed air out to the well. Also, pneumatic systems can develop leaks. Worse yet, if moisture gets into them, they can freeze up.

• **Endearments**—By making its system electronic, Magnetic Industries thinks it has most of these problems licked. For one thing, you need no pipes or wires between the control station and the wells; all directions go back and forth by radio. Also, the equipment won't freeze up if your wells happen to be in the cold regions of Canada or in the Williston Basin area of Montana and the Dakotas. More important, the system is sensitive. You can open a valve for any flow rate you want.

The operator in the control station can change any well's flow rate any time he wants to. And, because it takes him so little time to keep each well under control, he has plenty of time to do other jobs.

• **The System**—Here's how the system works: Say a well is pumping oil at the rate of 100 bbl. an hour; the operator wants to change the rate to 50 bbl. He turns the dial on the flow selector. This causes the control station equipment to receive two pieces of conflicting information at the same time: From a flow recorder at the well, it is told that the actual flow rate is 100; from the selector dial, it is told that the desired rate is 50. This difference tells the control station equipment to send out a signal.

In the field, a receiver picks the signal up, feeds it into a valve position indicator. This sets up a small electric current. A magnetic amplifier receives the current, gives it a boost, sends it into a motor. The motor turns the valve setting until the actual

JEEP GETS FLYING START ON FINISH LINE

Seven minutes in the oven is all it takes to bake the two coats of Glidden semi-gloss enamel on the military Jeeps at the Willys Motors, Inc., plant in Toledo, Ohio.

This rapid dry is remarkable in view of the wide range of temperature variations of the Jeep's many metal surfaces during the bake.

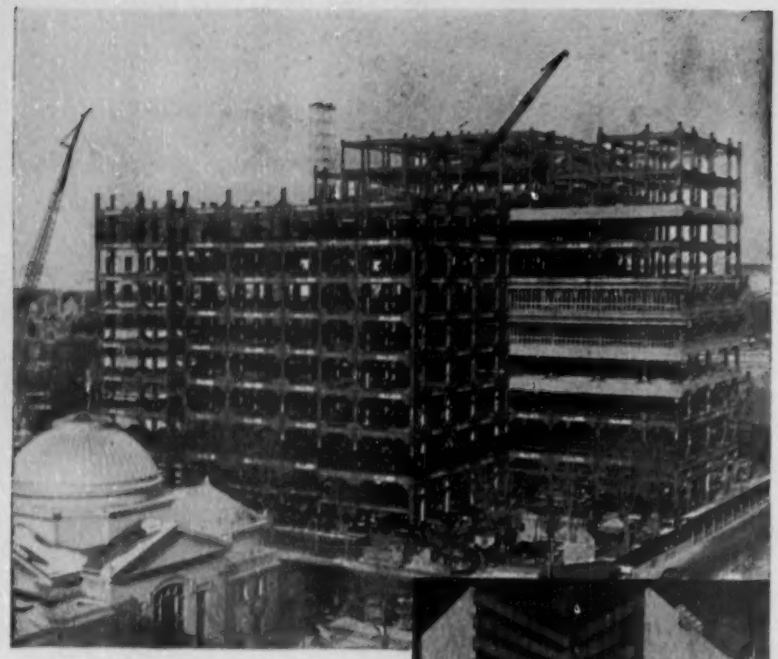
In addition to streamlining production schedules and cutting costs, the Glidden enamel produces a finish which meets all government specifications for appearance and durability.

Glidden is proud to be associated with Willys Motors, Inc., in the production of the famous Armed Forces work-horse—the Jeep.

THE GLIDDEN COMPANY

INDUSTRIAL FINISHES DIVISION
11005 Madison Avenue • Cleveland 2, Ohio

SALES OFFICES AND FACTORIES: San Francisco, Los Angeles, Chicago (Nubian Division—1055 North Leclaire Avenue), Minneapolis, New Orleans, St. Louis, Cleveland, Reading, Atlanta and Toronto



Hospital Zone Quiet, Please!

When the Mayo Clinic in Rochester, Minnesota, began construction of a new 10-story diagnostic unit, all agreed undue noise would disturb patients in surrounding hospitals. Never was silence more golden!

Completing the building on schedule called for dependable but "quiet" methods, men and machines! Some 160,000 high tensile bolts were used to fasten 8,500 tons of steel for the framework . . . eliminating noisy riveting. Silently powerful American Hoist machines provided much of the "muscle" for materials handling.

An American Stiffleg derrick was set up atop the structure to work with ground equipment. American 3-drum hoists put the "lift" in materials towers set up in the elevator shafts and outside the framework.

In hundreds of other ways, dependable American products are on the job cutting costs and speeding production. For other interesting stories of American equipment in action, mail the coupon for your regular, free issue of the illustrated American Crosby Clipper.

American Hoist
and DERRICK COMPANY

American Hoist & Derrick Company
St. Paul 1, Minnesota
Yes, I'd like to get the American CROSBY CLIPPER.
Also, send information on the following equipment:
— Hoists — Derricks — Cranes — Portable Elevators
— Wire Rope Clips

Name_____ Title_____
Firm_____
Address_____
City_____ Zone____ State_____

Send coupon today!

flow rate equals the desired rate—50 bbl. per hour. Then—because it's no longer receiving conflicting information—the control station stops sending its signal. Oil continues to flow at a constant rate of 50 bbl. an hour until the operator changes the flow selector dial setting again.

The transmitter out in the field never shuts down. It continues to send the actual flow rates back to the control station. This gives the operator a constant check on each well's production.

• **Market**—Magnetic Industries has turned the job of producing the equipment over to McEvoy Co., Houston, big oil field equipment manufacturer. Its hottest immediate market, of course, is the large oil field; but both Magnetic Industries and McEvoy figure the same system will find its way into other operations such as chemical plants and water works.

• *Source: Magnetic Industries, Inc., 2640 Huldy, Houston, Tex.*

NEW PRODUCTS BRIEFS

A business telephone with a special dial attachment that permits up to 40 people to hook into a single conversation has been developed by Stromberg-Carlson Co., Rochester, N. Y. The telephone also has a device that enables you to cut in on a busy line. A memory unit saves you from dialing a number again if the line is busy; the phone does the job for you when the busy signal stops.

•

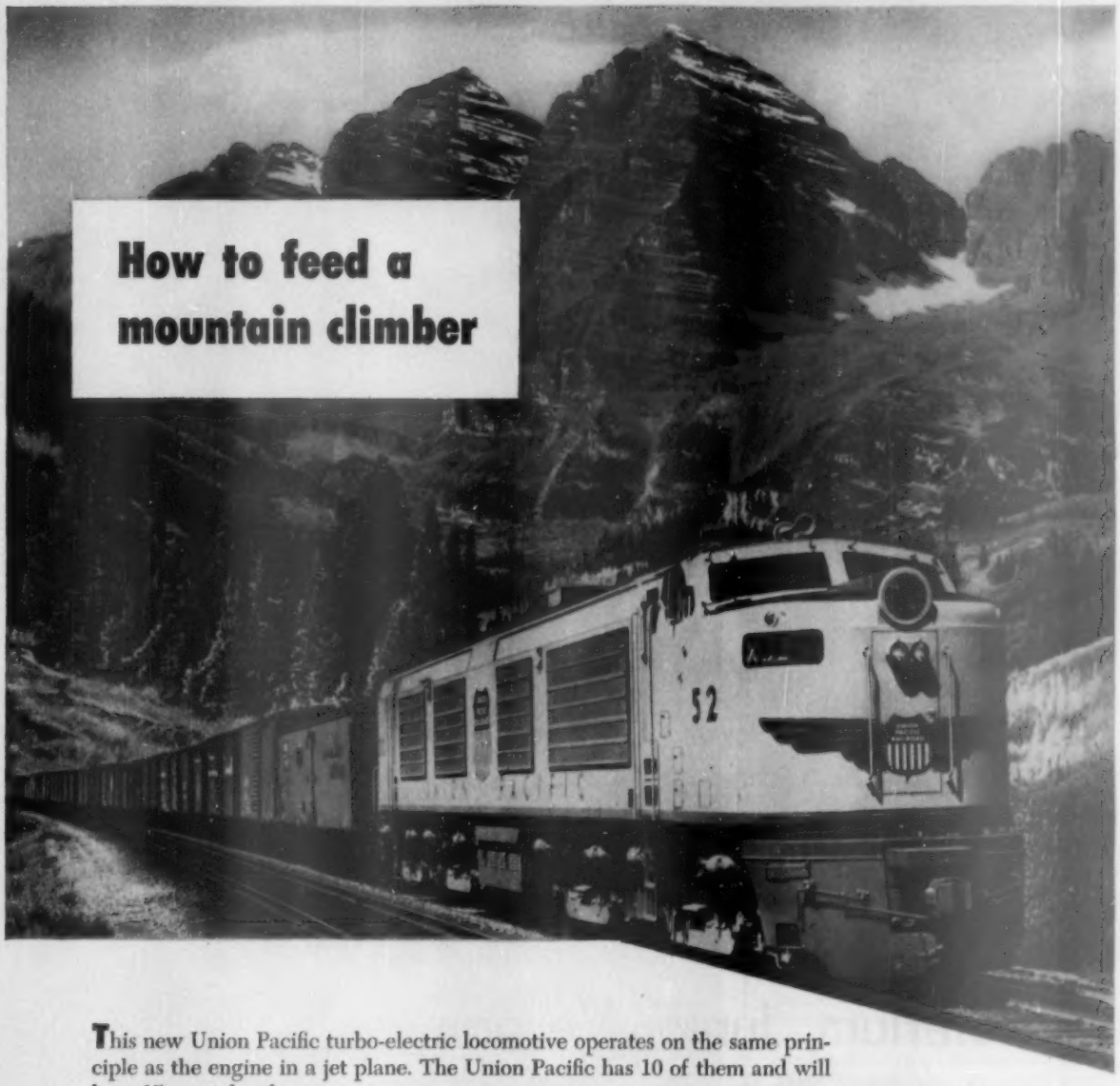
New paints: A fire-retarding paint that swells and chars on contact with flame or high heat has been introduced by the Glidden Co., Cleveland. The charred surface provides an insulating blanket of noncombustible ash. . . . A nongloss wall paint that can be washed and resists marring has been developed by Pittsburgh Plate Glass Co. Called Wallhide PBX, it is put on with either brush or roller.

•

For the air-conditioned house: American Welding & Mfg. Co., Warren, Ohio, is manufacturing a steel door that permits air flow between connecting rooms. V-shaped louvers take about 5% of the door's area but give almost total circulation for the whole door space.

•

Is your wife all thumbs with a pair of knitting needles? Knit-King Corp., 56 W. 45th St., New York, has a European machine that could help. It does the knitting for her, turns out a sweater in three hours. Price: $150.



This new Union Pacific turbo-electric locomotive operates on the same principle as the engine in a jet plane. The Union Pacific has 10 of them and will have 15 more shortly.

They concentrate 4500 to 5500 horse power—which is a lot of horse power—in one unit. That makes them ideal mountain climbers and the Union Pacific is using them to carry heavy freight loads over the mountains.

But they need a special diet, and *Sinclair is cooperating in developing it for them.* The problem is to obtain a burning oil with a low metal content that can be produced economically, because these powerful mountain climbers are heavy eaters. They consume a lot of fuel.

Sinclair is handed many problems like this because it has the resources and know-how to solve them. It's an example of how the Sinclair team of management, sales, manufacturing and research works together to get things done and keep the company up front in the highly competitive oil industry.

SINCLAIR
A Great Name in Oil

SINCLAIR OIL CORPORATION • 600 FIFTH AVENUE • NEW YORK 20, N. Y.

1 Professional planetarium (cost: up to $200,000) inspired a more modest idea.

2 Liversidge of Harmonic Reed went to work on a projector for home use.

3 Some trial designs irked the company's machinists; others, its marketing men.

4 An acceptable design evolved, and finally (right) the product was ready.

Planetarium, Junior Version

A few weeks ago, Armand Spitz, astronomer and manufacturer, put the finishing touches on a planetarium for Montevideo, Uruguay (BW—Jul.4'53, p58). The price tag: $100,000.

Next month, another Spitz-designed planetarium (pictures) will hit the shelves of toy stores in the U.S. The price tag: under $14.

• **Profitable Detour**—Since he founded Spitz Laboratories, Inc., in Philadelphia in 1947, Spitz has built 100 full-scale planetariums ranging in price from $1,000 for the simplest professional machine to $200,000 for the most elaborate model. This kept him too busy to perfect the first planetarium he ever designed: a homemade, scaled-down model he intended as a toy for his own child. He hadn't finished that job when he got the idea of going into the business of supplying the professional market.

Perhaps nothing would have come of the toy planetarium if Spitz hadn't gotten acquainted with Thomas Liversidge, president of Harmonic Reed Corp. of Rosemont, a Philadelphia suburb. This happened when he ordered some components for his big planetariums from Harmonic Reed.

• **Big Thinking**—Harmonic Reed had been a maker of metal harmonicas when World War II cut off its metal supplies. To stay in business, it had switched to plastic parts, and had then branched out into a wide variety of plastic games and musical toys: accordions, saxophones, trumpets. So it was natural for Liversidge to start thinking in terms of mass production when Spitz showed him his first model planetarium.

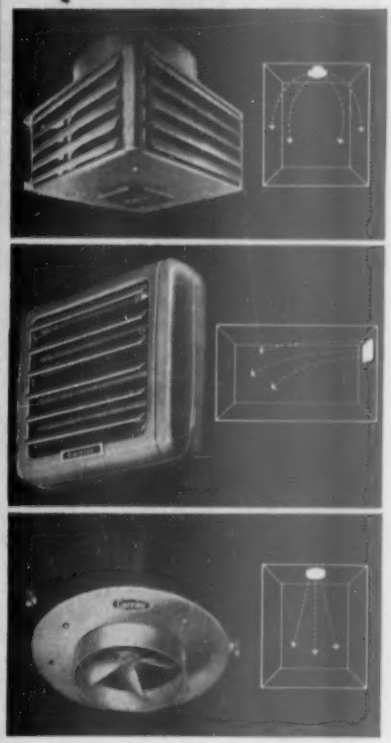
With the enthusiasm of Liversidge and the reawakened interest of Spitz, the two men quickly cooked up a deal:

5 Harmonic Reed's planetarium will hit the shelves of U.S. toy stores some

time within the next month. Price is around $14. The gadget projects nearly 400 stars, more than 70 constellations.

CARRIER ENGINEERED MEANS
FOREMOST IN INDUSTRIAL HEATING

Unit Heaters that aren't space eaters



Unusual COMPACTNESS AND CAPACITY combine in enabling these Carrier Unit Heaters (for steam or hot water) to heat relatively large spaces while occupying little space themselves. Their features and sizes permit a wide scope of commercial, industrial and institutional installations. Efficiency, styling, dependability are typically Carrier.

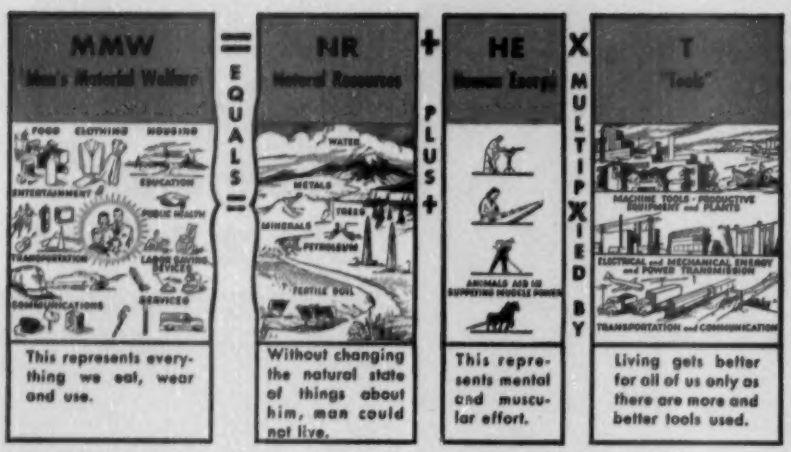
CARRIER Four-way Directed-flo Unit Heater (top) delivers warmed air streams through four independently controlled outlets at any angle from heights up to 30 feet. Seven sizes—82,000 to 500,000 Btu per hour.

CARRIER Horizontal Air Discharge Unit Heater (middle) delivers warmed air horizontally through adjustable discharge louvres. Ten sizes—21,000 to 200,000 Btu per hour.

CARRIER Projection Unit Heater (bottom). This single-discharge high-ceiling type unit with wide selection of outlet diffusers offers choice of coils for low or standard temperature rise. Capacities—32,000 to 492,000 Btu per hour.

For further information call the Carrier representative in your Classified Telephone Directory. Or write direct to Carrier Corporation, Syracuse, New York.

Carrier
AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING

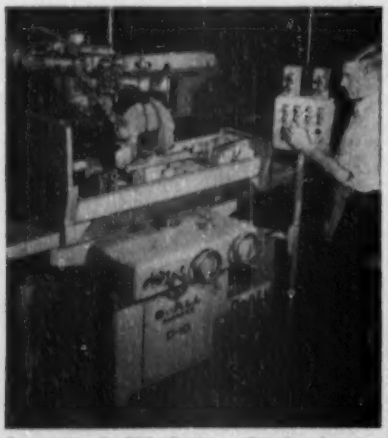


How High Can Wages Go?

Since the industrial revolution began around 1800, there has been, with relatively few setbacks, a continuous increase in "real" hourly dollar earnings of factory workers. (Real wages are figured by allowing for the effects of inflation on the value of the dollar.) For example, since 1940 hourly rates have increased 168% in terms of money wages and 77% in terms of real wages.

This leads naturally to the question, "how high can real wages go?" The answer is *just as high as individual productivity sends them.* If everybody produced twice as much, real wages would be twice as much.

In short, the height to which *real* wages can go is governed by the quality of man's work and the quality of the tools he works with. The tools, of course, are far more of a factor than the man

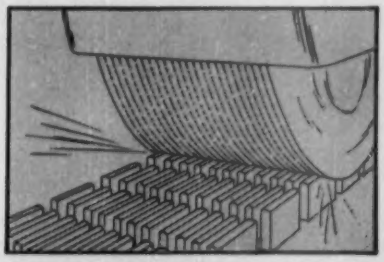


Automatic DoALL Surface Grinder forming radii on tiny parts for automobile power steering mechanisms. A mass production job.

because in America tools do at least 95% of the work. But the best of tools cannot *produce* properly unless they are *used* properly.

There is only one way to raise real wages: raise the production per person.

New DoALL Precision Surface Grinders are an outstanding example of machines that increase productivity and make higher real wages available for all.



Close-up of operation shown at lower left. The grinding wheel is crush dressed to a profile to give the desired contour to the parts. Production is 1150 pieces per hour.

These machines will produce surface finishes on metal parts, flat to millionths of an inch. They will also, because of their extreme rigidity and precision, do a remarkable job of "form" grinding, producing a contoured or shaped surface. Despite the tremendous stresses imposed by grinding grooved or other irregular surface, parts are produced accurate to ten-thousandths of an inch. And, the machines will repeat these cuts accurately, time after time, directly from handwheel settings. Demonstrations of these machines will be made free of charge in any plant upon request. The DoALL Company also supplies to industry band machines, saw blades, cutting tools, tool steel, gages and metalworking specialties.

DoALL

FREE ON REQUEST for your bulletin boards: 17" x 22" wall chart "Why Living Improves in America" — without advertising matter.

The DoALL Company
254 N. Laurel Ave.
Des Plaines, Illinois

Liversidge would try to adapt a toy planetarium to mass production and would market it through Harmonic Reed's usual outlets—toy wholesalers, dry goods chains, department stores; Spitz would share in the profits—if there were any.

• **Product Engineering**—That was a year ago. Since then, Liversidge recalls, several thousand dollars have gone into redesigning the toy.

As Spitz showed it a year ago, the model planetarium was a plastic cube perforated to project "stars" on the ceiling from an ordinary electric light bulb. Liversidge tested many different plastics to find a material that was nonflammable, opaque enough to emit light only through the perforations, and tough enough to withstand rough handling by children.

Then the light bulb was ruled unsatisfactory. It took up too much room, was too broad a source of light to create sharp images of stars, and was too easily broken. Liversidge found a flashlight bulb that was just right, but that meant building a transformer and rheostat switch into the toy.

Next, sales manager William Sherwood put his foot down on using a cube-shaped projector—no matter how you turned it, a cube didn't have eye appeal. Liversidge asked Spitz about changing to a sphere design; Spitz warned that he had tried it but had found it awkward to make in small size. Liversidge went ahead anyway. The sphere prettied up the toy, but Harmonic Reed's machinists cursed it—they had to design and manufacture new dies.

The projector base was a problem, too. It had to allow for calibrations and adjustment of the sphere to project stars as seen from any point on the globe—but the marketing experts turned down the first model as "too scientific." It had to be simple enough for a child to operate.

• **Debutante**—Out of all this travail comes the Spitz Junior Planetarium that will be unveiled at the New York Toy Fair starting Mar. 8. Liversidge is happy with the result of the engineering and marketing research.

The planetarium will project nearly 400 stars, upward of 70 constellations. Adjustments at the base permit positions of the stars to be changed according to the seasons of the year. Each toy is accompanied by a book of instructions and lessons in elementary astronomy, written by Spitz.

• **On Ground Floor**—Liversidge has applied for patents, but he is sure that the current rage for scientific toys will drive competitors to make copies or close cousins of his toy. He says he is content to be the first in the market.

"Right now, the nearest competitor sells for $1,000," he explains.

Wagner Multi-speed Motor installed on a 9 gravity oil well in Mississippi.

a pumping speed to fit each need

Wagner Multi-speed Motor doubles production of Mississippi Oil Well

Maintaining maximum allowable production (232 barrels a day) from this 7,200 foot oil well at Ovett, Mississippi, presents a complex motor application problem. The crude oil is so thick that heated oil must be circulated in the near surface depths of the well to even enable it to flow. A butane engine-operated pump was only able to produce 100 barrels a day.

Then a Wagner four speed motor was installed. The motor starts pumping at 575 rpm. As the crude oil warms and becomes thinner, the speed of the motor is increased to 870 and then to 1160 rpm. Allowable production is normally obtained by pumping at the third speed, but should production fall behind, the fourth speed (1750 rpm) is available to bring production up to the maximum.

Wagner Multi-speed Motors are furnished with any type of housing—open drip-proof, totally-enclosed, explosion-proof, splash-proof, etc., and with various electrical characteristics such as normal torque, high torque, etc.

This application is one of many where specialized requirements are met from the complete line of Wagner standard motors. Whatever your motor problem, Wagner has the *right* answer. Let a skilled Wagner engineer discuss your needs with you. Call the nearest of our 32 branch offices, or write us.

Wagner Electric Corporation EST. 1891

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To Beat Subway Jam...

. . . A Coin Machine

New York City subway commuters have never shown much fondness for either the subway or each other. But before the year is out, they may grow quite fond of a Chicago company named Johnson Fare Box Co. Johnson has developed a vending machine (above) that may take some of the harriment out of commuters' lives.

The harriment reached a peak last year when the New York Transit Authority raised the fare from 10¢ to 15¢. This meant that, instead of galloping into the subway and dropping a dime into the turnstile slot, you had to wait in line to buy a 15¢ token. The lines were long—to put it mildly.

Johnson's token vending machines may solve the problem. The Transit Authority plans to put two Johnson machines into operation, experimentally, this summer. If the experiment is successful, more machines are going to be moved in.

with Faith and Confidence in the future

UNION PACIFIC RAILROAD

$35,769,410.00 is being spent this year for 205 new diesel locomotives

Union Pacific demonstrates its firm belief in our nation's progress by continuing its broad program of constant improvement in freight and passenger service.

Of these 205 new diesel locomotive units, 190 will be for freight, and 15 for passenger service.

Delivery is expected to be completed by June 1, 1954, completely dieselizing the railroad's main line between Omaha and the Pacific Coast, for handling of through traffic. Thus, the progressive Union Pacific maintains its tradition of serving all the West with the most modern equipment.

The expenditure of over thirty-five million dollars for these additional diesel locomotives will help maintain payrolls and the buying power so vital to our country's economic welfare.

* * *

For Dependable Transportation
Be Specific . . . say

UNION PACIFIC

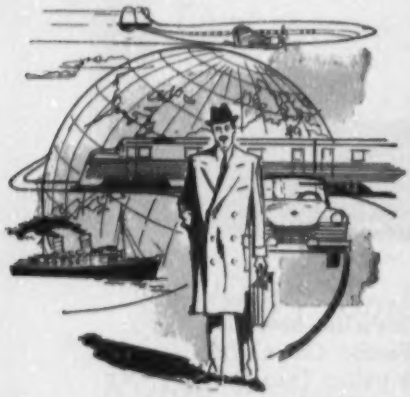
Progress at Whiting

A Bi-Monthly Series by Stevens H. Hammond, Chairman of the Board

When a Whiting management executive "takes to the road", what is he seeking? Is it his job to close a sale or find a new customer? Usually the answer is no.

Like most progressive companies, we have a field force of representatives covering the United States and many foreign nations. Sales and customer contact are *their* jobs.

When a Whiting management executive goes on a trip, his responsibilities are more complex and far-reaching. These responsibilities may be administrative and concerned with company policy, new plant facilities and new personnel. They may involve executive leg work in the continuous Whiting search for the new and better in products and processes . . . new markets and marketing programs.



We make this executive mileage a vital part of management's job at Whiting because we know how often and importantly the results contribute to Whiting progress.

Let's get down to cases:

Last year, our vice-president in charge of sales made two extensive overseas trips covering South America, Germany, England, France, Italy, Switzerland and Sweden. He brought back first hand information on general economic conditions in these countries, detailed analyses of specific needs in industries we serve, facts on operation of existing Whiting equipment, and improved, up-to-the-minute knowledge of the job being done by our many sales and manufacturing affiliates.

Such foreign trips as these are of course made in addition to the continuous work of our vice-president in charge of export in maintaining the world-wide contacts he has developed through the years.

Closer home, company management officials met with district office managers at three regional sales conferences in 1953 to integrate basic company policies and plans. Management executives in charge of our technical and engineering divisions are active throughout the year in the work of industry associations and technical societies. Working attendance at conventions and expositions is another important phase of executive travel, and this of course does relate to sales. Directors, too, get around. An example is our recent meeting in New York which was followed by an informal reception for Whiting prospects and customers in all the industries we serve.

The major result of all this travel is information . . . facts which benefit us and our customers. Perhaps a foundry owner in Indiana can profit by the experience of a British user of Whiting foundry equipment. A Cleveland manufacturer may get a new idea in materials handling from one of our customers in California.

It's the job of our executives who travel—and I'm no stranger to it myself—to extract the good ideas from the many obtained in their journeys, and to channel them to our engineering, manufacturing and sales divisions. These good ideas become an integral part of the equipment Whiting makes . . . added reasons why Whiting is doing the job better for you and all its customers throughout industry.

Stevens H Hammond

WHITING

WHITING CORPORATION
HARVEY, ILLINOIS

COMPANIES BRIEFS

The Glidden Co., paint manufacturer, got authority from its stockholders to go into petrochemicals. The company owns mineral rights and is exploring petrochemical substitutes for some of the oils it uses in its processes.

•

A bankrupt railroad can't be sold in its entirety but must be reorganized, a federal judge ruled in the case of the New York, Ontario & Western Ry. He said it would be in the public interest to approve sale of the 541-mi. freight road (Oswego, N. Y., to Weehawken, N. J.) to bidders who offered $4.6-million, but that federal bankruptcy law doesn't permit it. The road has been in bankruptcy since 1937.

•

Papermaking capacity of W. C. Hamilton & Sons of Miquon, Pa., was increased 50% by acquisition of Michigan Paper Co. of Plainwell, Mich. The Michigan mill, with capacity of 160,000 lb. a day, was owned by Detroit News interests. Hamilton makes mostly stationery and other fine paper.

•

Marked-down air tourist fares go into effect Apr. 1 on both Atlantic and Pacific routes. Pan American World Airways offers through service, with stopover privileges, from New York City around the world to San Francisco or Los Angeles at $1,300, compared with $1,700 for first-class.

•

Mutual Telephone Co. in Honolulu changed its name to Hawaiian Telephone Co. after 71 years in business. It found (1) mainland investors needed a hint of its geographical location and (2) too many people assumed from the name that it was a cooperative.

•

A million-dollar rehabilitation is scheduled for the French Lick Springs Hotel in French Lick, Ind., by the owners, a subsidiary of Tishman Realty & Construction Co. of New York. Modernization and redecoration will involve all 600 rooms of the resort hotel, and the 2,000 acres of grounds will be improved, too—all while business goes on as usual.

•

Piper Aircraft Corp. of Lock Haven, Pa., reported civilian aircraft sales up 32% in the fiscal quarter ended Jan. 31, compared with the same period a year earlier—which in turn was 48% ahead of the preceding year.

•

Howard Johnson Co. (BW—Sep.6'52, p42) has set up a separate company to operate a motel business. Three units, upward of 20 rooms each, are planned for Florida.

IN

DALLAS*

THEY MOVE 'EM WITH

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"Git along, little freight cat..."

*Texans do it right... and to prove it here are some photos taken at The Garland Modification Center of Oil Well Supply Division, United States Steel Corporation, in Dallas.

1 Trackmobile quickly spots loaded freight car at dock of Dallas firm.

2 Car unloaded, Trackmobile moves it away. No costly delays waiting for switch engine!

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3 Empty is taken to a spur. Trackmobile changes from track to road wheels in 30 seconds—drives off to next job without being "bottled up".

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Electric Chain Hoists

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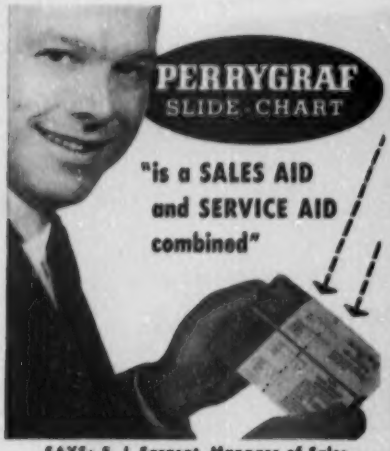

SAYS: F. J. Sargent, Manager of Sales Allied Oil Co.

In the best judgment of hundreds of executives responsible for sales, Perrygraf Slide-Charts are a real sales help. Important is their ability to dispense complicated information in simplified form . . . by just pulling a slide or turning a disc. It's accurate . . . quick . . . easy to use. There is no obligation to inquire how they can help you!

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INTRICATE DESIGN is checked by Todd executives (left to right) Richard MacAllister, John Hansen, Hal Miller, and Albert Kennedy. Todd believes that . . .

Art Helps Foil the Forger

Checks by Todd with their built-in "burglar alarm" have long been the bane of would-be counterfeiters. Now artwork and color will make duplication even harder.

"Checks," says George L. Todd, president of Todd Co., Inc., "are money, pure and simple. They are personal currency, and should be handled like what they are—cold, hard cash."

It's easy to see why Todd feels so strongly on the subject. His Rochester (N. Y.) company is one of the biggest manufacturers of check blanks and check-writing machines in the United States.

During its 53-year lifetime, the company has concentrated on making the check the most practical way of transmitting money. Its first venture was a machine that "shreds" (imprints or perforates) the amount payable onto a check blank. This process turned out to be one of the greatest setbacks to counterfeiting. Since 1913, when it began making check blanks, Todd has been slowly but surely promoting the check into a work of art.

• **New Look**—This week, the company announced another stride in the industry. It will turn out a four-color bank check for the U. S. National Bank of San Diego, Calif. The new check, which looks like something to be framed rather than cashed, shows the discoverer of the Pacific blended into a background of blues and other hues.

This isn't the first four-color check to be used. Companies have long found them invaluable advertising. But this is the first time that banks—Todd's biggest customers—have shown interest.

• **Top-Drawer Secret**—Like all Todd's checks, the new four-color job will be printed behind closed doors and drawn blinds, by a closely guarded secret process. One thing is certain, however: It will include all the latest developments in the industry's running fight against check forgers, counterfeiters, and check hikers.

In its operations, Todd has always emphasized not only the danger inherent in the finished check, but also in the blanks and even in scraps of safety check paper. It takes literally the advice of an old-time forger—then serving a term for a slip-up—"Guard the paper like money every step of manufacturing so that a forger can get neither paper nor the check forms."

Todd's check manufacturing plant is operated like an arm of the government's currency and engraving bureau. Employees are bonded, doors of the printing department are kept locked, and only accredited visitors with special passes and badges are allowed inside. Some sections are barred even to them. Damaged sheets or scraps of check paper not used are practically chewed to death.

• **Cutting Losses**—All this precaution isn't just a Todd eccentricity. For more than half a century, during which the use of checks has grown rapidly, science has been out to short-change the forger. While a lot of progress has been made, losses in the U. S. still run about $400-million a year.

Todd is the only company that offers

⅛—11 x 3½ Stainless Steel Machine Bolt. One of over 7,000 different stock items.

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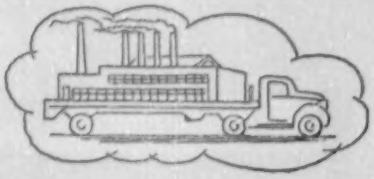

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LOOK AT THESE ADVANTAGES OFFERED BY STEVENS POINT, WISCONSIN

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SP-1

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The engineering history of Stone & Webster Engineering Corporation is intimately interwoven with the rapid development of alloy piping for high pressure, high temperature and corrosion resistance.

Write or call us for information as to how our complete familiarity in this field can be of help to petroleum, petro-chemical, chemical, utility and waterworks industries.

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"...in 1910, the company developed an improved model, which shredded in the exact amount..."

CHECKS starts on p. 120

a complete service of safety checks and the machines for protecting them. It also has a protection counsel and insurance plan, which guarantee the performance of its products' protective features.

• **The Pilot Model**—The Protectograph struck the first body blow at forgers. It was invented by Libanus M. Todd in 1899, and is the foundation on which the company grew. Basically, it is a machine that shreds the amount limitation onto the check paper with indelible ink.

Todd's original model shredded NOT OVER 00000$ deeply into the actual fibers of the paper.

Todd's brother, the late George W. Todd, undertook to market the early model, and was so successful that the government used it for safeguarding its warrants. In 1910, the company developed an improved model, which shredded in the exact amount of the check.

• **Branching Out**—Three years later, the company began making checks because much of the check paper then in use was too poor in quality for shredding. Todd used a special tinted "safety" paper and gave a year's supply as a premium to purchasers of its machines.

In 1919, Burgess Smith—formerly with the U.S. Bureau of Printing & Engraving—joined the company and started work on the truly safe check. Two years later he developed the Protod Greenbac, rated the safest check ever invented. Smith introduced the "voids" system and intricate designs of outer ink layers.

To make its forger-proof checks, Todd takes rolls of white paper, sends them through paper machines to put an intricate design in color on the back, then covers the front with the word "void" printed again and again. Next it covers the "voids" with a camouflage process, and finally with a highly intricate design over that, before printing the check face. The over-all design lithographed over the "voids" is a complicated dot formula. When the check is tampered with, the erasure or pen scratches through the outer layers and reveals the word "void." After the checks are printed, the formula and plates are destroyed.

Another milestone in Todd's history was the development of the check signer in 1932. This machine imprints four-color signatures (facsimile)

through a ribbon combined with an intricate background—making a signature almost impossible to forge.

Todd now makes four major types of checks: Super-Safety in your choice of six colors; Pantagraph and Bank-Mark for banks; and its Protod Greenbac for commercial uses. Its ABC payroll checks are of the Protod Greenbac type.

The company perfected its Bank-Mark check last year, after a 15-year development period. Its selling points are that the paper used permits designing any background desired, plus the fact that the front and back are of different colors, which makes these checks practically impossible to duplicate.

• **Strides**—Todd Co. has come a long way since Libanus M. Todd invented his Protectograph in a shack behind his house. The home plant now has 877 employees, plus another 609 in its branch offices. Also, Todd has distribution in 65 foreign countries.

Sales of all company products last year set a record of $19,676,747—more than $1-million ahead of 1952. Machines accounted for more than $6-million of last year's sales, while checks and related supplies sold to banks and commercial customers made up the rest.

It is estimated that about 15-billion checks are passed each year in the United States. Todd's take adds up to about one-sixth—despite the fact that it has half a dozen healthy competitors, together with thousands of printers who turn out check forms on ordinary paper. Apparently Todd is out to get an even bigger share of the business.

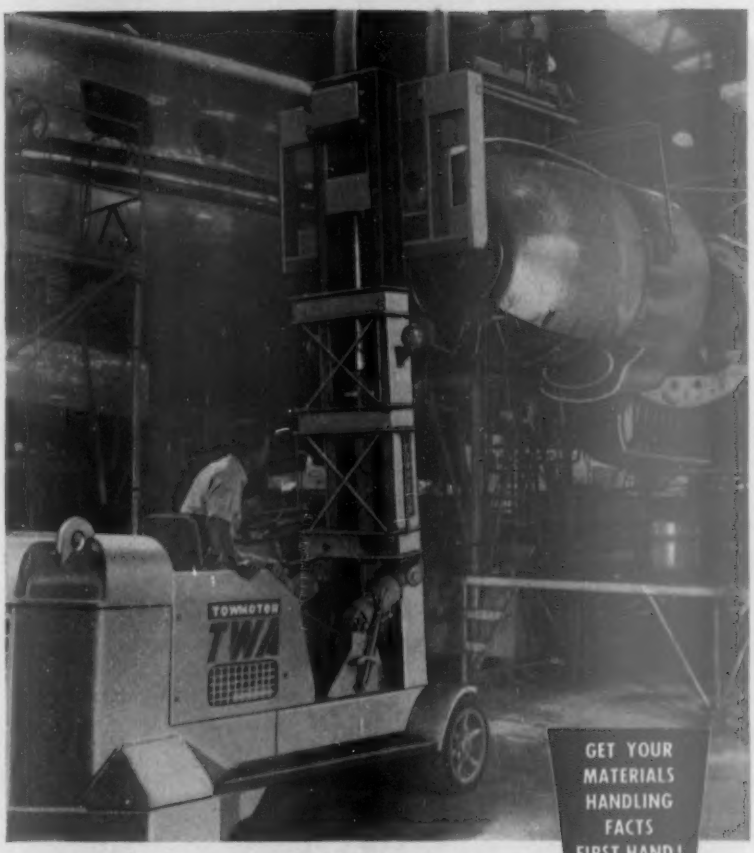
Last year the company spent $90,000 for equipment, thus providing a 50% increase in printing capacity on checks and forms.

• **All in the Family**—Todd's successful venture is largely a family affair. Since it first raised its head in 1899, it has been almost completely controlled by the Todds.

Walter L. Todd, 67-year-old nephew of founder Libanus M. Todd, is chairman of the board. Walter went into the company from Cornell University in 1909 in a sales capacity. He became general manager, then president in 1931.

George L. Todd, company president, is his brother. He started his career with the company as a manual laborer, handling paper in the stockroom. He moved up to selling, became general sales manager, then president in 1946.

Executive vice-president A. Richard Todd, son of Libanus, joined up 20 years ago after doing a stint at Stromberg-Carlson. He's now in charge of production.



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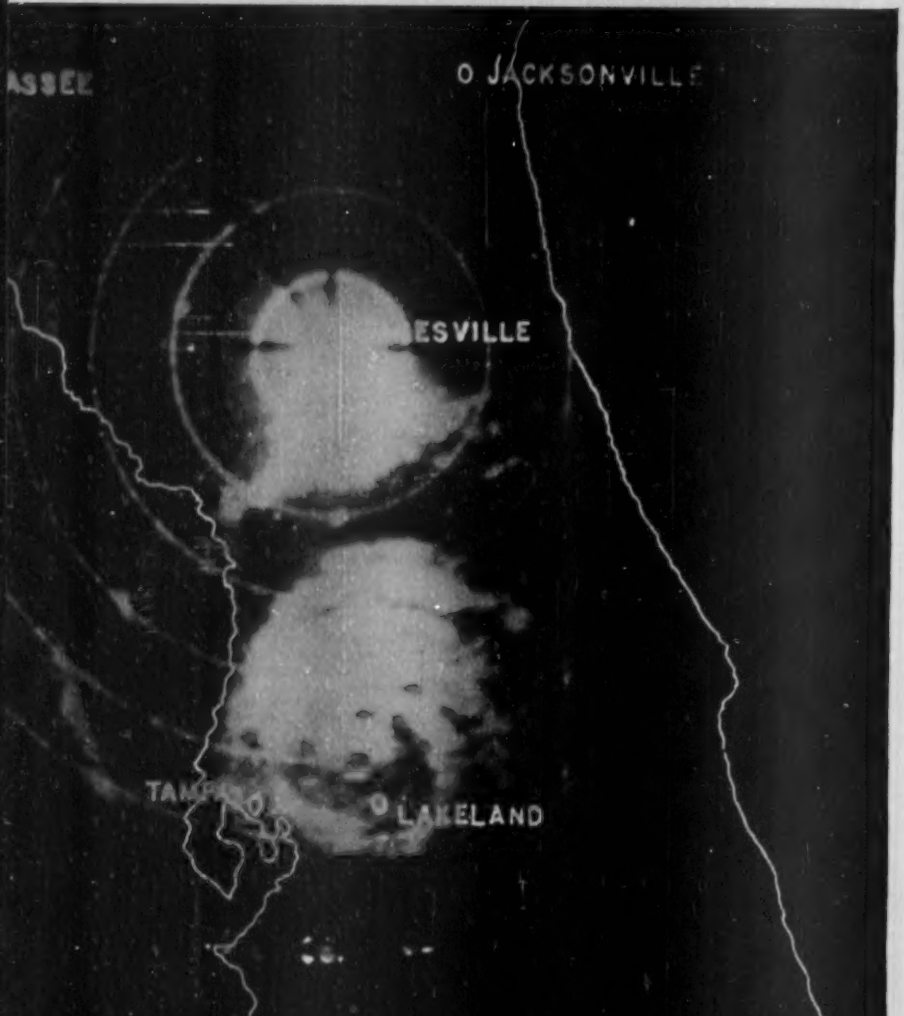


Spiral pattern of a hurricane shows up like this on radarscope.

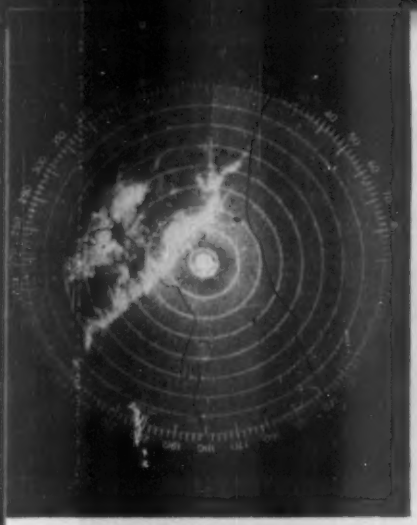
You can spot a tornado . . .

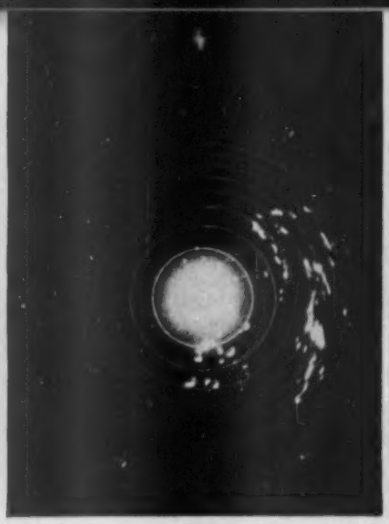
How Radar

RADAR is now scanning Texas, where Weather Bureau plans statewide network.

YOU CAN do all sorts of things with radar once you get acquainted with it. You can use it to watch the movements of ships and aircraft. You can even use one of its modifications to poke around on the moon. Of particular interest to Texans, right now, is the fact that you can use radar to detect, analyze, and track weather conditions with impressive accuracy.

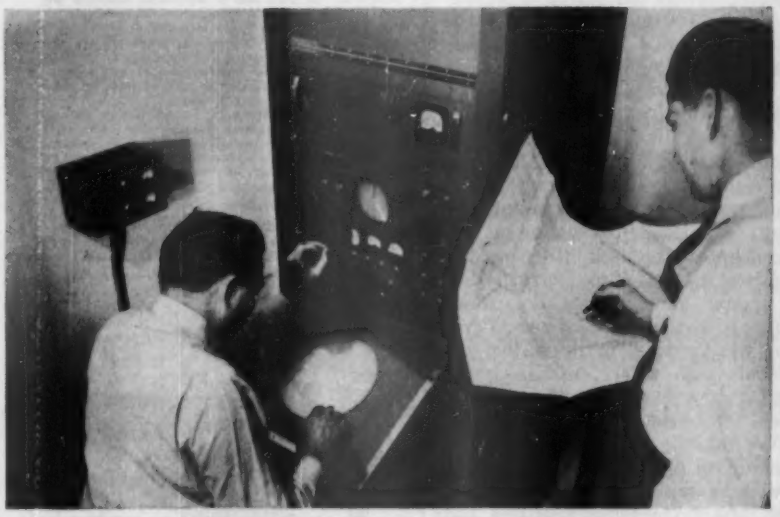
Last week, radar equipment was installed in and on top of the Federal Office Building in downtown Houston —where the U.S. Weather Bureau maintains a big station. This is intended as the beginning of a radar network that will eventually blanket the entire state of Texas. As the Weather Bureau sees it, such a network will let the state live with its weather much more happily than it has been able to





an advancing cold front . . . scattered showers. This is . . .

Helps Watch the Weather



WEATHERMEN in Houston—first city in projected network—are getting acquainted with their new equipment this week. Other cities will follow soon.

do in the past. It'll allow for earlier, more accurate, more detailed forecasts of almost any kind of oncoming weather that might affect Texas citizens' lives and livelihoods.

The Weather Bureau's dream doesn't stop on the boundaries of Texas. If the radar system proves out there, the bureau thinks, other states may look into the idea—particularly states that, like Texas, are subject to such angry kinds of weather as hurricanes and tornadoes. (Radar equipment is now operating in other states—as the picture at left shows—but there are no other networks like the one that's planned for Texas.)

• **Funds**—The Weather Bureau has had radar on its mind for many years, and would like to have started a project like the Texas one long ago. It was held back by lack of funds. No matter how hard it tried, it couldn't coax enough money out of Congress.

The radar sets themselves were easy to come by; the Navy offered the bureau 100 war-surplus sets (worth about $30,000 apiece) for nothing. But the bureau needed money to modify the Navy equipment for weather work, and to install it. This expense was going to run $6,000 to $10,000 for each set.

While pondering the problem last year, the Weather Bureau found an ally in Texas Agricultural & Mining College. The college, it seemed, was almost as eager to improve weather forecasting as was the Weather Bureau. Together, the college and the bureau sold the idea of a radar net to the Texas Civil Defense & Disaster Relief Organization. That outfit, in turn, sold the idea to various Texas cities. They

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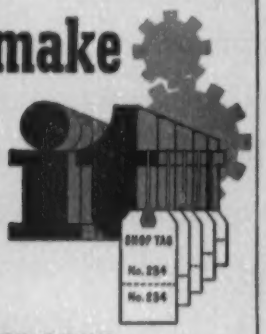

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RADAR starts on p. 124

agreed to put up the money for modification and installation of the Navy radar.

In Houston, the work was paid for by the city itself, Harris County, and the Houston Port Commission. Next city on the list is Abilene, to be followed by a parade of big names that includes Dallas, Galveston, Waco, Fort Worth, San Antonio, and El Paso.

• **Model**—The Weather Bureau picked Texas to house the first network for reasons other than the cities' willingness to kick in funds. For one thing, tornadoes and hurricanes have taken many lives and caused vast damage in the state. Texas has played unwilling host to over 500 tornadoes since 1916. The tornadoes that hit Waco and San Angelo last spring killed 125, injured 755, and did over $45-million worth of damage. With that kind of background, the Weather Bureau figured, Texas probably needed improved forecasting more than many other states.

Then again, several radar forecasting stations were already operating in the state. The bureau itself had three experimental stations. Dow Chemical Co. and several other private companies maintained stations of their own. Texas A&M was carrying on forecasting experiments with radar. All this represented a store of experience and a fair amount of operating equipment that the Weather Bureau could put to use in setting up its statewide network.

• **Quick Warning**—Just how does radar figure into the work of watching and forecasting weather?

Essentially, radar (short for "radio direction and ranging") consists of a directional radio transmitter and a radio receiver. The transmitter sends out brief pulses of electrical energy. When this energy strikes any reflecting object—a piece of metal, a rain-bearing cloud—some of it bounces back to the receiver. It shows up as an "echo" on a picture tube called a radarscope. A skilled operator can size up the echo's characteristics and tell what and where the reflecting object is. By making repeat observations, he can tell whether the object is moving, and—if so—how fast and in what direction.

The Weather Bureau plans to modify the Navy's radar sets so as to make the echoes sharper, easier to read, and thus able to convey more precise information.

Meteorologists will be able to look at the radarscopes and identify thunderstorms, hurricanes, cold fronts when

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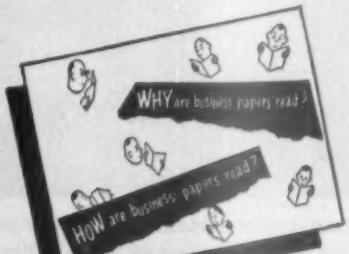

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accompanied by rain, hail storms, showers, and squall lines.

Tornadoes will be a little harder to spot. But, knowing the general weather conditions from which tornadoes spring, the Weather Bureau's radar men will be able to keep track of twisters easily enough. Almost all tornadoes grow out of thunderstorms. If a radar operator finds an unusually intense thunderstorm building up, he can call a spotter in the storm area for a visual check. If the spotter reports that a tornado is indeed in the making, the radar man can track the storm and have an alert sent out to the towns and cities in danger.

• **Constant Watch**—When the Texas radar network is complete, it will let weathermen keep every storm under continual observation.

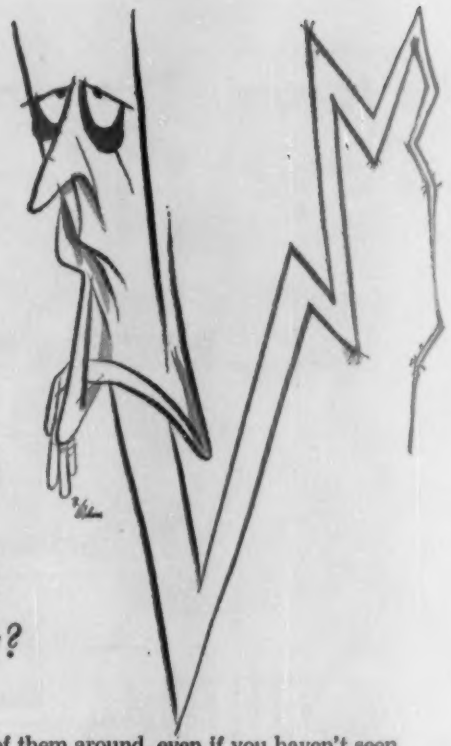
Radar operators will know its intensity and its exact direction at any given moment.

This will allow for accurate forecasts, pin-pointed geographically. It'll undoubtedly help weathermen learn more about their subject; they'll be able to watch the whole life history of a storm from birth to death. And it'll be a boon to Texas farmers and businessmen.

Take the experience of Dow Chemical Co. The company figures that, if it had to close its plants every time a general hurricane warning went out, the loss of working time would cost millions of dollars over the years. That's why Dow maintains its own radar weather station at Freeport, Tex. It closes shop only when radar shows a hurricane headed right for its plant areas.

The Texas network has still another charm for the Weather Bureau. Using radar observations, the bureau will be able to make much more accurate flood predictions than in the past. Texas is a big state; much of it is sparsely populated or not populated at all. When rain falls in these empty areas, the Weather Bureau has little hope of finding out about it. Rivers get swollen; nobody knows a flash flood is coming until it hits a more densely peopled region. With radar scanning the horizon, the Weather Bureau will be able to spot rainfall no matter where it occurs.

• **Post Mortem**—Radar will also help weathermen in Texas find out why forecasts went wrong. Though weather forecasting is becoming a more and more exact science, there are so many factors involved in any weather situation that it's often extremely hard to assess them all correctly. Using his radarscope, a forecaster can find out what happened to the thunderstorm he thought was coming but didn't. This kind of post mortem may yield new knowledge of the way weather behaves.



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There are plenty of them around, even if you haven't seen them. For any conscientious, hard-working "volt" would be depressed by the fact that 90% of electrical circuits in use today won't allow a dollar's worth of power to do a dollar's worth of work. Inadequate circuits make motors loaf, run hot, burn out. Lights operate below par. Control devices overheat, cut out, slow up production. Additional power demand for new equipment may be dangerous or impossible.

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The Income Pattern — Business Week's Regional Income Indexes

Federal Reserve District	Change from Year Ago	The Indexes: Dec. 1953	Nov. 1953	Dec. 1952
Boston 1.	+ 2.2%	261.1	260.0	255.4
New York 2.	+ 4.7%	276.7	278.2	264.2
Philadelphia 3.	+ 0.9%	269.1	270.9	266.7
Cleveland 4.	+ 3.0%	298.2	303.9	289.6
Richmond 5.	+ 1.0%	312.0	311.6	309.0
Atlanta 6.	+ 0.4%	359.9	362.0	358.4
Chicago 7.	+ 5.0%	309.0	310.2	294.3
St. Louis 8.	– 0.6%	294.2	295.2	295.9
Minneapolis 9.	+ 1.6%	318.5	313.9	313.5
Kansas City 10.	+ 0.3%	360.7	358.2	359.8
Dallas 11.	+ 0.8%	405.9	404.4	402.8
San Francisco 12.	– 4.3%	328.1	331.9	343.0
U. S. Composite	+ 1.7%	307.1	308.4	302.0

1941 = 100; adjusted for seasonal. December figures preliminary; November revised

©BUSINESS WEEK

Incomes: The Taper Is Steeper

Income in December was only 1% under the peak reached last July, according to the national composite of BUSINESS WEEK's Regional Income Indexes. But the year-to-year gain, which has been narrowing steadily, was down to 1.7% in December—as against a gain of 9% in July.

Two regions, St. Louis and San Francisco, had lower income in December than they'd had the year before. In St. Louis the decline was still very small. But San Francisco's drop from a year ago widened from 2.3% in November to 4.3% in December.

For the country as a whole, income in December edged off very slightly—0.4%—from its level in November.

REGIONS BRIEFS

Toll road cost in New York State is heading skyward. The New York-Buffalo Thruway, originally planned to cost $500-million, will actually come close to $700-million (BW—Nov.28'53, p90). And last week Gov. Thomas E. Dewey, in a special message to the legislature, proposed four more toll roads, totaling 810 mi., to cost a fabulous $1.1-billion.

■

Weight-distance taxes on trucks (page 139) are spreading fast. The Colorado legislature adopted one last week; it will take effect next Jan. 1 and will yield an estimated $3-million to $4-million annually. And a citizens' committee has been formed to press for adoption of a similar tax in New Jersey.

■

Pay-as-you-go and withholding by employers, as methods of collecting state income taxes, are also taking hold. Delaware, Oregon, and Vermont already use one or both; Kentucky has just adopted a law embodying both, which goes into effect July 1; and legislation is pending in Arizona and Colorado. In answer to Kentucky employers' complaints that the new law makes unpaid tax collectors out of them, a companion bill was introduced last week to let employers keep 2% of everything they collect, as a fee.

■

Most transit companies take a big loss on their old streetcars when they shift over to buses. But the Chicago Transit Authority operates a subway-elevated system, too. So it's having 250 former streetcars converted into el-subway cars at a total cost of $8-million; the first were delivered last week. CTA figures it's saving $20,000 per car as compared with the cost of new subway units.

■

A joint study of possible new highway, bridge, and tunnel construction to help solve traffic problems in and around New York City was announced last week by the Port of New York Authority and the Triborough Bridge & Tunnel Authority. Among the major projects to be studied: a bridge across The Narrows from Staten Island to Brooklyn; a new Hudson River bridge; a second deck on the George Washington Bridge; and two or three expressways across Manhattan.

■

Add Cincinnati to the list of cities that levy income taxes. The temporary, emergency measure will run only from Apr. 1 to Oct. 31; it's expected to raise $6-million in that time. The 1% tax applies to gross wages and salaries of individuals, both residents and nonresidents, and to net profits of corporations and unincorporated businesses.

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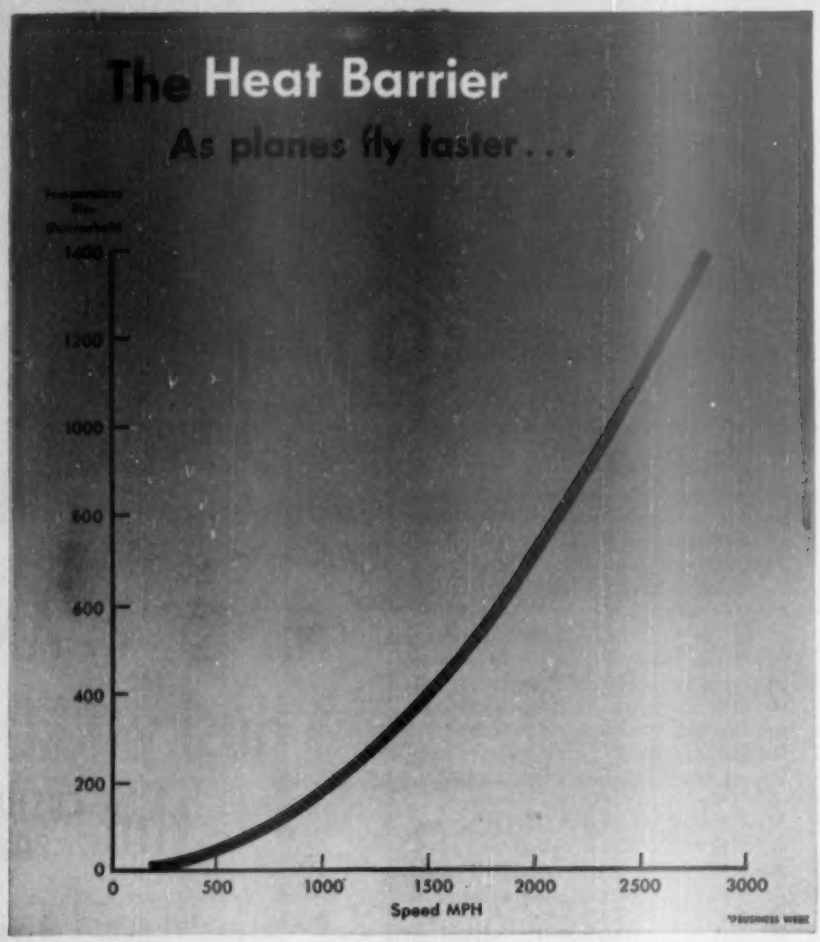


Faster-Than-Sound Speed Hi

As late as 10 years ago, many aircraft designers and engineers were convinced that man would never fly faster than the speed of sound (that's about 760 miles per hour).

However, as better planes and jet engines began to come off the production line, pilots proved that the so-called sound barrier could be pierced. Once they got past this trouble zone—which occurs around the speed of sound—they were able to pick up speed again with relatively little trouble. It began to look as though the speed of airplanes was unlimited.

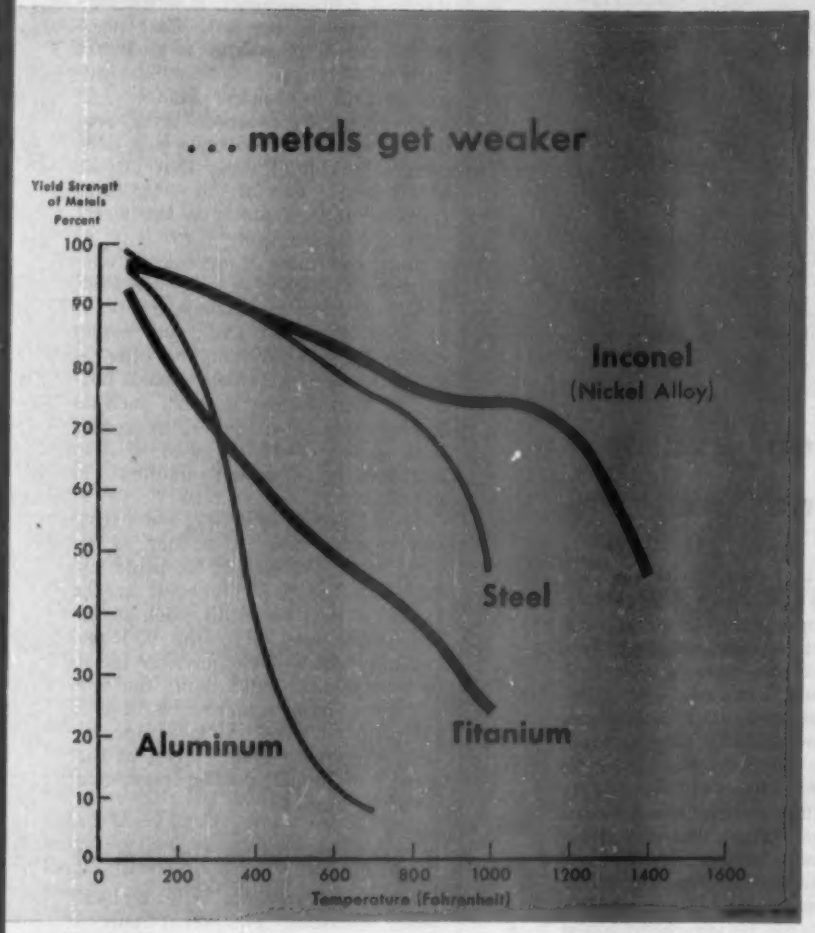
Victory over the sound barrier, however, has brought on a new and bigger problem. As a plane's speed increases, heat is generated by the air being pushed out of the plane's path (chart, above). Rising temperatures threaten to broil the pilot alive, and melt the airplane. They also threaten to place new limits on the speeds at which man might fly.

• **More Research**—This triple threat has sent the designers and engineers back to their drawing boards to tackle the problem of how to reduce the hazards of flying through the heat barrier. New materials, new refrigerating systems, and new insulators are all possible aids—and they probably will all be needed before the problem is licked.

I. Cooling the Pilot

The heat barrier differs from the sound barrier in two major ways. Once the sound barrier is pierced, most of the problems it raises are solved. But the heat barrier is a continuing problem.

First, the faster a plane flies, the more serious the temperature increase becomes. There is no speed at which the problem diminishes in seriousness.



Hits Another Barrier

Secondly, heat affects all parts of the plane. A change in design to pointed noses, swept-back wings, and similar configurations—plus more powerful engines—helped eliminate the sound barrier problem. To beat the temperature problems, however, all parts of the airplane—design, materials, and equipment—may have to be changed.

• **Heat Factor**—This problem has not yet been entirely faced. Even though planes in special tests have flown as fast as twice the speed of sound, they have never maintained the speed long enough for heat to become a serious problem. The Douglas Skyrocket, for instance, is known to have flown twice the speed of sound, but the entire flight from launching to landing was 12 min., of which 8 min. were used in landing.

The same is true of many guided missiles. The duration of their flight is not sufficient to present a serious heating problem. The high-flying V-2 and similar rockets are sent up into the rarefied atmosphere where insufficient air exists to affect the temperature seriously.

The first effects of rising temperature are felt by pilots. Up until now, the major problem with pilots has been to keep them warm at the low temperatures at high altitudes, but the new anticipated speeds of supersonic aircraft cause temperatures to rise much faster than any altitude differences can compensate. Thus, the temperature problem with pilots has been reversed—from keeping warm to keeping cool.

To achieve this, companies like Stratos Division of Fairchild Engine & Airplane Corp., and Airesearch Mfg. Co., a division of the Garrett Corp., are developing new cooling systems. Here again, engineers face new problems.

• **Search for Answers**—The usual

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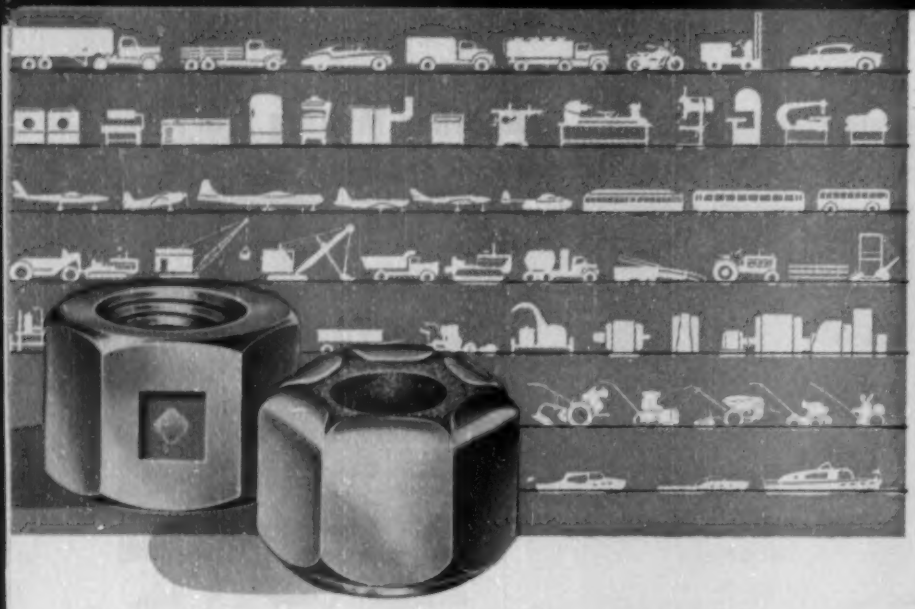

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The Townsend Nylok Nut* on the left is cold. forged to provide added strength in the body and threads. The locking element in the nut is a tough nylon plug insert in one hex face which projects beyond the crest of the thread. When the nut is run down on a bolt, the highly resilient nylon is compressed but not cut by the bolt threads. Its spring-like action grips threads tightly and sets up a counter-thrust, creating strong metal-to-metal wedging of bolt and nut threads. When a Townsend Nylok Nut* is removed, the insert seeks to return to its original shape, giving great reusability. This also makes it possible to lock the nut in any position on the bolt—seating is unnecessary.

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method of cooling sections of an airplane, such as the engine, is to use outside air to carry away the heat. However, at the supersonic speed, where the heat problem arises, it is the outside air that is getting hot. That causes the increase in temperature of the plane. So it is no longer possible to use surrounding air to cool the plane.

One suggested solution, being used in the experimental Douglas X-3, is to carry a tankful of water that can be boiled away. Part of the water turns to steam and escapes from the plane, carrying away the heat.

Since water boils at much lower temperatures at higher altitudes (at 160F at high altitude, for instance, compared to 212F at ground level) this system can be used to maintain the plane at the temperature at which water is boiling. Other cooling systems, such as turbines—which force hot air to expand, thus cooling it—can be used to drop temperatures as much as another 150 degrees.

Such a system of boiling water is effective only, however, as long as the water lasts. The size of the plane and the size of cooling equipment needed to cool it thus eventually reach an uneconomical level. On the X-3, for instance, which is designed for speeds up to a possible 2,000 mph., the cooling system now accounts for 10% of the plane's weight. At faster speeds—perhaps even for longer flights at that speed, additional cooling equipment would be needed.

II. Heat-Resistant Equipment

Pilots are not the only problem. Most electronic equipment fails at 160F, and hydraulic oils are finished at about the same temperature. So, in a supersonic plane, this equipment must also be kept in an air-conditioned chamber.

It isn't satisfactory just to insulate electronic equipment either. Vacuum tubes and some other electronic equipment generate heat of their own.

Possible solutions to the electronic equipment and hydraulic oils problems include redesigning the equipment, in addition to the air-conditioned chambers. Transistors, which generate virtually no heat in operation, are one possible solution to this problem. Transistors can't stand heat so well as vacuum tubes, but engineers hope to get around this. They also hope to develop hydraulic fluids that will withstand higher temperatures. So far, they haven't had much success above 250F, still low by heat-barrier possibilities.

• **Just the Beginning**—Even when the electronic and hydraulic problems have been solved, and new materials have been found for such uses as sealers around engines and cabins, the engi-

neers will just be getting started. Take the tires on the plane's landing gear. One of the laws of basic physics is the pressure of gas increases with increases in temperature, if you don't change the size of the container. Thus, if you fill a landing tire with 200 psi. of air pressure on the ground at a temperature of 80F, then fly the plane fast enough to raise temperatures of 620F, pressure in the tire has been doubled. The tire holding 200 psi. of pressure on the ground is now trying to retain 400 psi.

• **Troubles Pile Up**—Similar problems arise in almost every single part and piece of equipment in the plane.

The outside of the airplane causes an even greater difficulty. Most airplanes today contain aluminum or aluminum-magnesium alloys in structural parts and outside skins. Aluminum loses half its strength before it reaches 400F, which occurs at about twice the speed of sound. Titanium, often hailed as a wonder metal, can pick up part of the load, for it still has half its strength at 800F.

Beyond that, engineers will have to go to stainless steel or special alloys, such as the nickel-bearing Inconel. However, neither of these can be used at speeds exceeding 2,500 mph.

• **A Look at Metallurgy**—Scientists and engineers believe that the main solution to the structure problem is to start now carrying on much more intensive fundamental research into metallurgy. Scientists would like to know why metal behaves as it does and what can be done to improve its strength at high temperature. Until recently there hasn't been much demand for such information so long as metals performed the jobs demanded of them. Now, however, researchers believe this work should be stepped up.

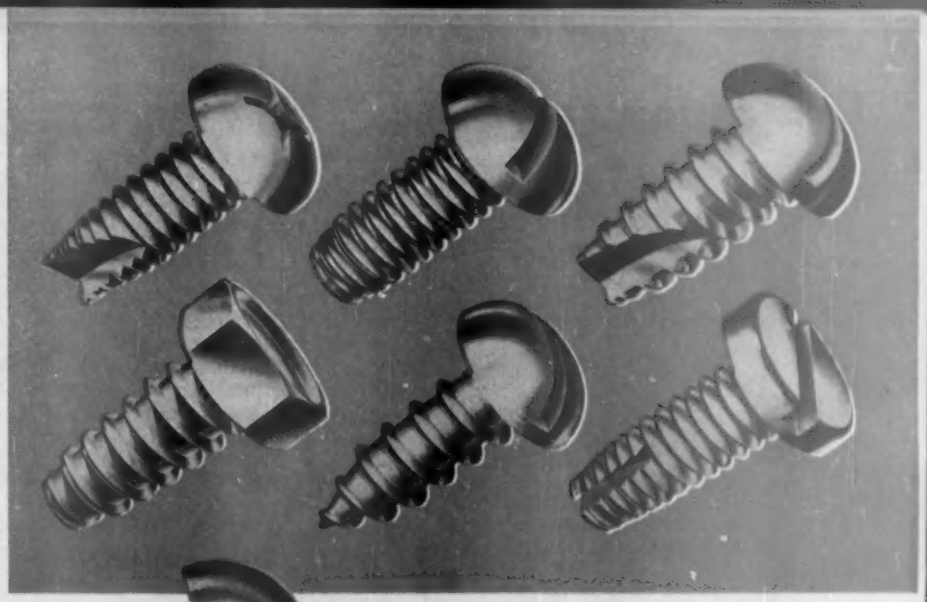
They are also suggesting, as a possible solution, the eventual use of glass-plastic laminates in airplane structures and wings.

III. The Slow Approach

The changes in materials in airplanes will probably not come too fast. Even though men like Thomas Piper, formerly director of materials and process engineering for Northrop Aircraft, Inc., envision planes with glass wings and glass fuselages, supported by titanium, lubricated by powders instead of liquids, and cooled by special means, such planes are still pie in the sky.

Engineers will probably take the slow approach to the heat barrier. Since it isn't a wall to be broken through, as the sound barrier was, but is rather a continuing forest of ever-thickening brush, the engineers will have to chop it away bit by bit as they get deeper.

This means that they will take on the cooling of the pilot and of certain equipment first. They are now doing this with



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the X-3. When they have convinced themselves that this can be handled, and while they are working on the pilot problem, they will be working on fuels with high boiling points, better hydraulic fluids, and better lubricants. This will permit them to roll back the barrier a little more.

• **Progress**—Meanwhile, companies are installing huge aircraft presses for possible use in forging planes of hollow steel or similar materials. They are studying better methods of cooling, such as substituting low-boiling-point metals for water in the tanks to carry heat from the planes. And they are working on powdered metals for possible use as lubricants. These changes will be made step by step until the great transition can be made to glass wings and planes.

To keep from getting ahead of themselves, the engineers are performing a continual balancing act. For each step along the way, they improve materials some, increase the cooling some, and possibly change the insulation some. The most efficient combination of changes is necessary at each point.

• **Grounded by Costs**—The high cost of these changes and the rapidly decreasing efficiency of planes with the special equipment is what will limit them to military uses within the foreseeable future. Probably no engineers envisage flying commercial planes at twice the speed of sound. It wouldn't cut that much time off traveling in proportion to time spent getting off the ground and landing—and it would be prohibitively expensive.

Even for military uses it isn't likely that engineers will ever try to solve all the problems the heat barrier might present. They're more likely to bypass the problem with rockets that are sent above the earth's atmosphere, where air particles won't cause the extreme increases in temperature. Engineers are already working on this approach for guided missiles. It is conceivable that in the future people might also be flying in rockets above the atmosphere.

Technology Through the Ages

A book by Vice-Admiral Harold G. Bowen and Charles F. Kettering tells the story of men and tools.

The story of technology—its origins and evolution—is not a simple one. You can't lift it out of history and tell it merely in terms of machines, inventors, and industrialists. For sometimes history affects technology; sometimes technology affects history; and often both affect each other at the same time.

Take slavery, for instance. For thousands of years, slavery was a tremendous barrier to the progress of technology. But in the end, technology was an important factor behind the abolishment of slavery.

The story of technology, within the broad framework of human history, is the subject of a new book titled A Short History of Technology (Thomas Alva Edison Foundation, Inc., West Orange, N. J.) It's written especially for high school students. The authors are both engineers: Vice-Admiral Harold G. Bowen, former head of the Office of Naval Research, is executive director of the Edison Foundation; Charles F. Kettering, former vice-president of General Motors Corp., is the foundation's president.

• **Profit and Loss**—"In contemplating the glory that was Greece and Rome," Bowen and Kettering point out, you have to remember that both cultures "were cursed with slavery to an incredible degree." The authors believe that discovery and invention are generally made by the common man. They feel that this explains why Greece and Rome, with their great cultural advances, added little to the growth of the world's technology.

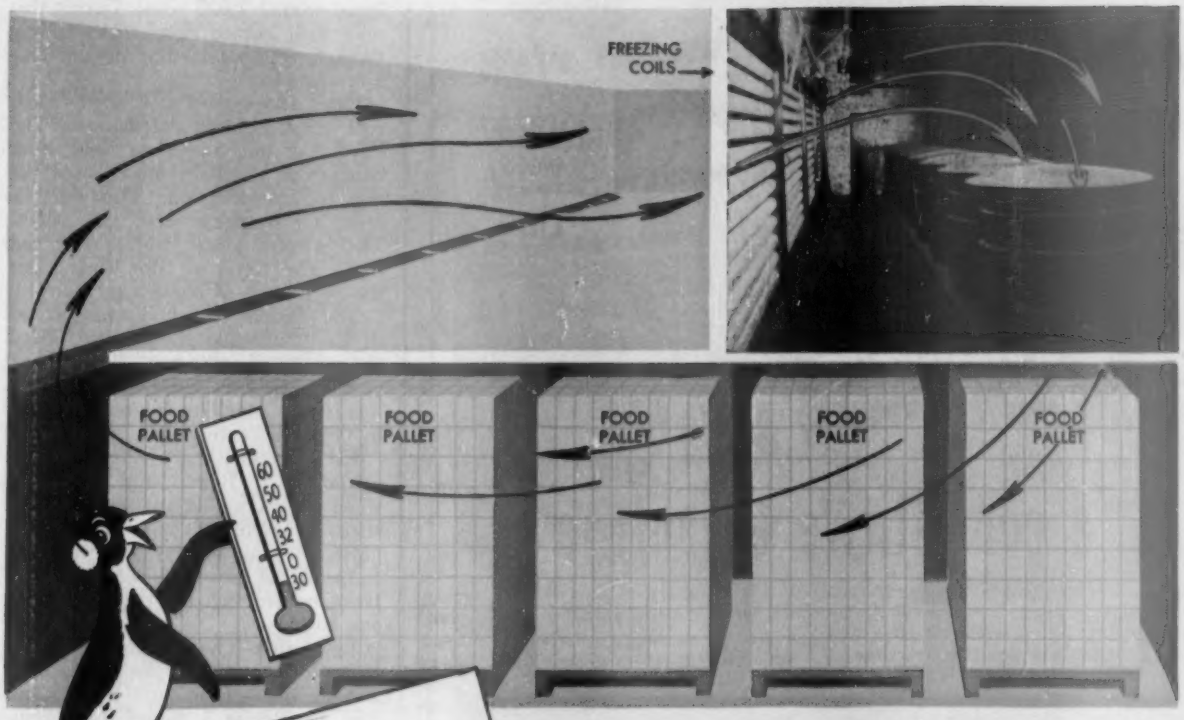
But eventually, the use of machine power began adding to the mechanical energy each man could command. As machines grew bigger and better, the maintenance of slaves became less and less profitable. Thus, "technology made slavery unprofitable and, thereby, accomplished more than the Decalogue and all the fiats, edicts, decrees, and proclamations of emancipation. . . ."

Bowen and Kettering feel that the rule that has applied to slavery also applies to other great social phenomena. They end their 102-page book with a belief that "war will continue until mankind is convinced that war has become absolutely unprofitable for all participants."

• **Beginners**—The authors have traced the story of technological growth from the beginnings of human history.

The Eolithic Age (dawn stone age) gave the world the first crude stone implements. The Paleolithic, which lasted anywhere from half a million to a million-and-a-half years, is credited with many technical improvements. During this time, man found how to make tools of flint; he successfully used chips of flint as scrapers, planes, and awls. He made harpoons of reindeer horn, tools and spears of bone and horn. And he found that fire could be controlled for heat and light.

The Neolithic Age opened in Western Europe about 10,000 B.C., and



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® AXIVANE FANS HANDLE SEVERE QUICK-FREEZE JOB

A West Coast quick-freezing plant boasts an effective operation that utilizes 24 Joy 7½ HP Series 1000 Axivane Fans, installed in two groups of 12 each.

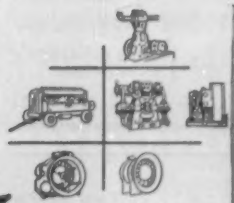
Note the illustration above. The upper floor contains freezing coils and a row of 12 fans. The floor below is partitioned into narrow freezing tunnels, each served independently by a single Joy fan.

As air passes through the freezing coils, it is cooled to between —30° and —35°. This sub-zero air is propelled down and through the tunnels below, which contain pallets of meat, vegetables, fruit, etc. to be quick-frozen. After passing over the food, the air is again cooled and circulated. At full plant load, each 12-fan battery handles 242,000 CFM of air.

The relatively quiet operation, light weight, compactness and low power consumption of Joy Axivane Fans—due to the unmatched efficiency of their vaneaxial design—have proved *real* advantages on this job. Their in-line construction also saves space, since each fan can be mounted right in its short, vertical duct. In addition, extreme flexibility of operation is made possible by the adjustable blades, a standard Joy feature. ● Let us help you to get best results on your fan problems. ***Joy Manufacturing Company, Oliver Bldg., Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Left: Looking up from the quick-freeze room below a Joy Axivane Fan. Note the compact, economical use of space and the simple mounting.

Consult a Joy Engineer



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a competitive advantage

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Fortunately, your prospect knows there's more to the product story than appears in any ads . . . and it's his job to find out which is the best product for *his* needs.

Right here is where your ad can be different; can help the buyer solve his problem . . . and therefore help him buy from you. You can tell him that there is a lot more information about your product—a catalog *—right in his own office.* And you can tell him this with complete confidence that he *has* it there. If your ad interests him, he can take the next buying step by merely *reaching* for your catalog.

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And it's so simple. All you do is anchor good product information in the offices of your best prospects the way 1,550 manufacturers anchor it—in the appropriate collection of manufacturers' catalogs that are assembled, bound and delivered to industrial buyers by Sweet's Catalog Service. Then direct attention to it in every ad you publish or mail.

For more data on how this works—how it pays to make it easier for your prospect to buy, send for the free booklet, "How to Improve Marketing Efficiency through Improved Catalog Procedure." Write Dept. 55, Sweet's Catalog Service, 119 West 40th Street, New York 18, New York, or call the Sweet's district manager near you.

"The easier you make it for people to buy your products, the easier they are to sell!"

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[SEEN CLUES LATELY? ..... Turn to Page 178]

lasted around 7,000 years. During this time, man learned many tricks—among them, how to polish stone and domesticate animals.

• **Later Times**—And so it went. Each civilization made its contributions. The Egyptians and Sumerians, and their conquerors, the Babylonians, used the river for transportation. They were famous for irrigation work and canals. They planted wheat, barley, oats, and rice. The Egyptians also worked out the beginnings of modern geometry.

The Eastern Roman Empire, based in Constantinople (Byzantium), aided the growth of commerce. Later, European civilizations added such developments as patent law, started in Italy in the 15th century A.D.

Each of the great civilizations fell, according to Bowen and Kettering, when its leaders became satisfied with their achievements and sat back to gloat. As the nations stopped their technological growth, Bowen and Kettering believe, they lost their dynamism and failed.

• **Revolution**—The modern history of technology began with the Renaissance, and—as the authors add—the "Scientific Revolution." Since this beginning, great inventions and important developments have been the major milestones of technological history:

• Invention of the reciprocating steam engine;

• Mechanization of the textile industry;

• The theory of interchangeable parts;

• Introduction of the central electric power station;

• Discovery of a source of free electrons, leading later to vacuum tubes and similar inventions;

• Invention of the rotary steam engine;

• Invention of the internal combustion engine;

• Invention of heavier-than-air flying machines;

• Introduction of mass production.

• **Today**—Mass production, which has meant much to the automobile industry—which, in turn, owes much to author Kettering—dominates the present stage in the history of technology. The stage began with the coming of the automobile and the internal combustion engine.

In America at that time, around the turn of the 20th century, there appeared such names as the Duryea brothers, Henry Ford, Elwood Haynes, and Ransom E. Olds. All were experimenting with the "horseless carriage."

The automobile plant of those days was mainly an assembly point, as it is today. Parts were made in outlying plants and shipped to a central one for final putting-together. But Olds, among others, was unhappy with the system

as it then existed. Cars were put together separately, by hand. It was too slow.

Olds went to work. He laid out his plant to speed things up. Each of his cars started as "a little square frame on a moving stand," to which parts were added until the car was finished. It was the forerunner of the modern assembly line, and it helped Olds boost his production to 4,000 cars a year.

Other companies and other fields copied Olds's routing system, and added to the growth of mass production. Henry Ford, with his famous Model T, achieved a new high in mass production when he hired Walter E. Flanders, who specialized in simplyfying work. Flanders was a specialist in routing materials and in jigs and fixtures. He "understood the relationship of machine location to flow of material."

The development of the airplane and its engine followed along the same mass-production route.

• **Long-Range Benefit**—During all the growth of technology—and particularly during the stage when mass production was taking over—there was much nervous talk of "technological unemployment." Workers feared that they would be replaced by machines vastly more efficient than themselves. They were, but the machines created other jobs. Some relocations and readjustments took place, Bowen and Kettering admit, but the end result was always a higher standard of living and a higher level of employment.

RESEARCH BRIEFS

Rainmaking is the aim of scientists at the University of Arizona and the University of Chicago, who have joined in establishing an Institute of Atmospheric Physics at Arizona, manned by Chicago scientists. They hope to determine how much dry regions, such as the Southwest, can be benefited through efforts to stimulate additional rainfall.

•

Inland Steel Co. has started new research programs designed to keep it "abreast of technological progress being made in steel production anywhere in the world." Three top executives at Inland's Indiana Harbor Works are being freed of operating duties to devote full time to the programs.

•

New $5-million textile laboratory of du Pont is nearing completion in Wilmington. It will be used for studies on du Pont's Orlon, Dacron, and nylon, as well as acetate and rayon. A $3-million polychemicals laboratory will be built later on the same tract of land.

"We've reduced our scrubbing time from 70 to 7 man-hours ... and our floors have never before been so clean!"

— Says Foreman of BURNY BROS. BAKERY, CHICAGO

Garage and stockroom floors in Burny Bros. large, modern bakery get daily scrubbing with a *Job-Fitted* *Combination Scrubber-Vac* and *Setol Cleanser* . . . .

THEY'RE AN UNBEATABLE TEAM to speed the cleaning of oily, greasy floors. *Here's why:* A *Scrubber-Vac* completely mechanizes scrubbing. It applies the cleanser, scrubs, flushes if required, and damp-dries the floor—*all in one operation! Job-fitted* to specific needs, a *Scrubber-Vac* provides the maximum brush coverage consistent with the area and arrangement of the floors. Its teammate, *Setol Cleanser,* is specially designed for the greater speed of *combination-machine-scrubbing* . . . emulsifies grimy oil and grease *instantaneously* for fast, thorough removal by the machine's powerful vac. Moreover, *Setol* retains its strength longer than average alkaline cleansers. This, too, speeds the cleaning process . . . saves on materials . . . and cuts operating time of the machine, which in turn reduces labor costs.

The *Scrubber-Vac* shown above is *Finnell's 213P,* for heavy duty scrubbing of large-area floors. It has a 26-inch brush spread, and is capable of cleaning up to 8,750 sq. ft. per hour! *Finnell* makes sizes for small, vast, and intermediate operations (available on lease or purchase plan) . . . also a full line of fast-acting cleansers. In fact, *Finnell makes everything for floor care!*

Find out what *you* would save with *combination-machine-scrubbing.* For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 3802 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

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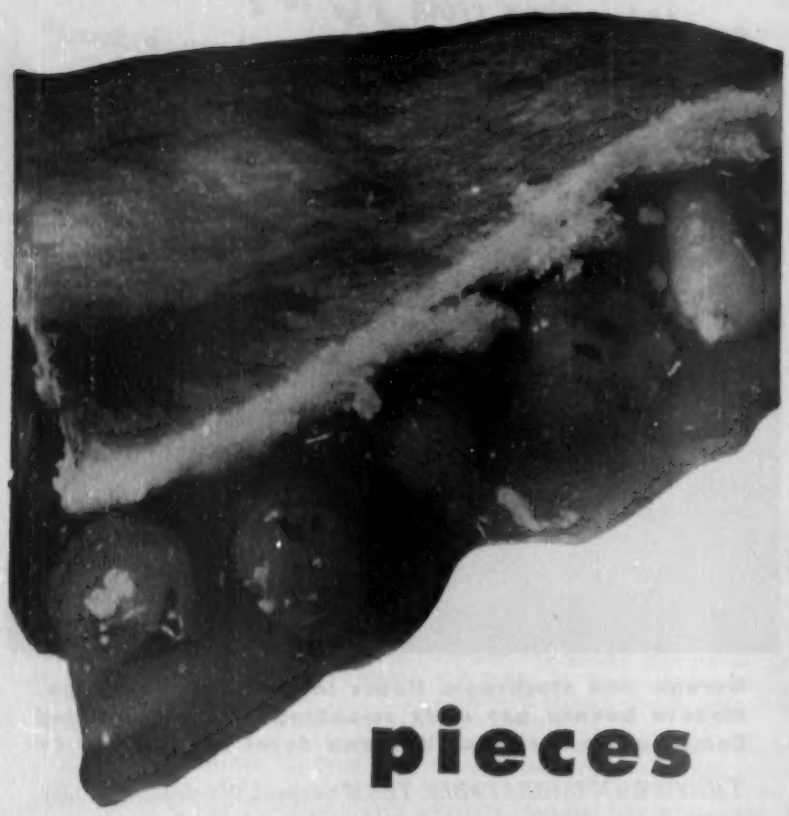

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That's right!

1,400,000,001 pieces of fruit pie.

Factual evidence of how a specialty starch product has helped to make bakery pies America's #1 dessert.

There was a time when the only fruit pies you enjoyed eating were homemade.

But imaginative starch research has changed all that.

Last year, 1,400,000,001 pieces of bakery pie were made with National's CLEARJEL®. Each piece had brilliant fruit color, full bodied fruit in clear jelled fruit juice, and orchard fresh flavor —with never a masking overtone of cereal taste.

Proving, once again, how a specialty starch product, this time a modern fruit pie stabilizer, can give a tremendous lift to a product's sales.

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LOCAL BUSINESS

A Dry New Orleans?

NEW ORLEANS—The Mississippi River has been primarily responsible for the growth of New Orleans. So it's no wonder that New Orleans is not too happy over the fact that the Mississippi is in the process of changing its course and, if the move is unchecked, will some day bypass this city entirely.

The Mississippi is constantly changing its course. Most of the changes are minor, however—cutting across the neck of a bend, for instance, or switching from one side of a bit of high land to the other. But every now and then—perhaps once in 400 or 500 years—the river makes a major change in its course. It's one of those that's going on now.

• **First Diversion**—The trouble spot is just below the southwestern corner of Mississippi (map). There a 6-mi. channel called Old River (once just a bend in the Mississippi) connects the Mississippi with another river, the Atchafalaya. Some 70 years or more ago, the Mississippi started to divert some of its waters through the Old River to the Atchafalaya, and down it to the Gulf of Mexico—a distance of only 120 mi., compared with 320 mi. by the main channel.

At first the diversion was small. But it has been increasing faster and faster. Ten years ago it was only 17%; today it is around 25%—and is already beyond the point where any natural process could reverse the trend. If the figure ever gets to 40%, the lower Mississippi will silt up so rapidly that the process would become virtually uncontrollable by any means. And all downriver points, including New Orleans and Baton Rouge, the state capital, would be left high and dry. At the present rate, that will happen before 1975, perhaps as early as 1965.

One interesting point is that the diversion probably would never have become serious if men hadn't tinkered with the flow of the river. Ever since

the turn of the century, the Mississippi River Commission has been keeping Old River dredged so flood waters of the Mississippi could use it, and thus avert levee breaks farther downriver. In the early 30s the Atchafalaya was dredged, too, for the same reason.

• **Quick Action**—It can be stopped now, but it will cost plenty. The Army Engineers have a $75-million plan that they're sure will work. It involves (1) a huge earth dam completely sealing off Old River; (2) a navigation lock and connecting channel parallel to Old River, to let barge traffic move between the Mississippi and the Atchafalaya; and (3) concrete control structures built into the Mississippi levees about 10 mi. north of Old River, which could be opened during floods to let the excess water into the flood plain north of Old River, and thence into the Atchafalaya.

If work doesn't start soon, the engineers say, the cost of control will skyrocket. This need for haste in an economy Congress is rumored to be one big reason for the relative ease with which the St. Lawrence Seaway bill is progressing: Southern members of Congress, the rumors say, are voting for the Seaway on the understanding that northern and midwestern congressmen will vote for funds to control the Mississippi when that matter comes up.

'Copter-Covered TV

SEATTLE—If station KING-TV is right, you may have to add a helicopter and a heliport to the equipment needed to run an up-to-date television station. Last week KING-TV dedicated "Seattle private heliport No. 1" on the roof of its headquarters building. It also signed a contract with Helicopter Service & Sales Co. for exclusive use of a new Hiller 12-B 'copter.

The station will use the helicopter to cover spot news all over western Washington. "A helicopter," says Charles Herring, the station's news director, "is the only possible means of getting out to the scene of a story quickly, being able to land at the spot, and being able to return right to our studios with the pictures."

Trucks Pull Out of Ohio

COLUMBUS, OHIO—No solution is even in sight yet for the complex interstate problems created by Ohio's axle-mile tax on in-state and out-of-state trucks, which went into effect Jan. 20 (BW—Jan.23'54,p98). But one result is already apparent: Ohio truck operators are moving their headquarters to other

INVEST LESS AND GET MORE...
Choose a 'Load Lifter' Crane

FOR AVERAGE INDUSTRIAL USE, the new Series "D" All-Electric 'Load Lifter' Cranes are today's greatest value — cost much less than other cranes for similar service. Built on the same design principles as the famous "Shaw-Box" Heavy-Duty Cranes, they incorporate features found only in the most expensive cranes.

FOR RELIABLE PERFORMANCE *all* gearing operates in oil. Skillful distribution of metals assures maximum strength, minimum dead weight. Rugged *three-girder* construction contributes freedom from whipping and skewing. All moving parts rotate on ball bearings. To make accurate spotting easy, variable-speed magnetic control and bridge brake are provided. Three basic types and three styles of trolleys are available, with manual or electrical traverse-motion control. Floor-operated cranes have a pendant-type push-button control; cage-operated cranes are controlled by master switches.

STANDARDIZED AND MASS PRODUCED by Shaw-Box, Series "D" 'Load Lifter' Cranes are dependable, economical to operate and maintain, and provide complete safety for man, load and crane. Capacities range from 1 to 20 tons. Selection is easy. Just write for Catalog 221 and choose the size and type you need.

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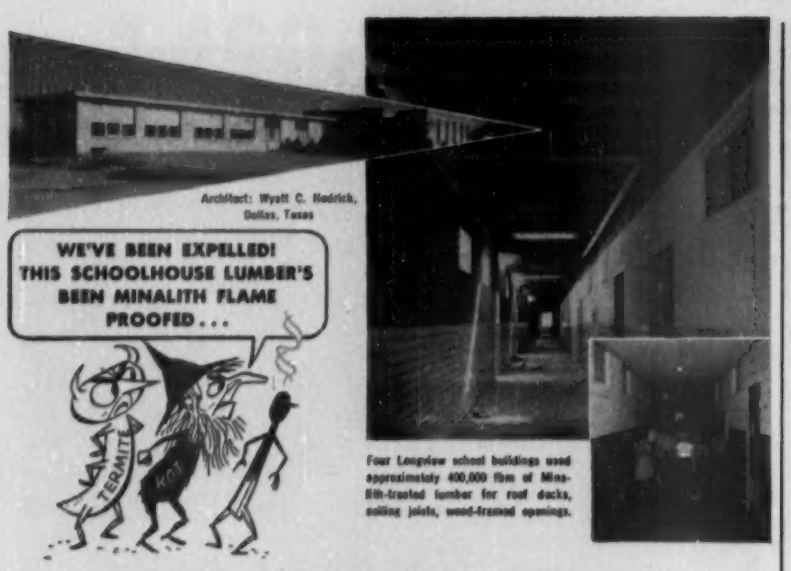
Architect: Wyatt C. Hedrick, Dallas, Texas
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Four Longview school buildings used approximately 400,000 fbm of Minalith-treated lumber for roof decks, ceiling joists, wood-framed openings.

How Longview, Texas PROTECTS its school children and its tax dollar investment

When the citizens of Longview, Texas decided their community needed four new school buildings, they demanded absolute structural safety plus practical economy of design and construction. They also wanted long serviceability with minimum maintenance.

Wyatt C. Hedrick, well-known Dallas architect, suggested a popular and economical method of construction—brick veneer supported by fire-retardant chemical-impregnated lumber.

Hedrick specified that lumber be pressure impregnated with Minalith.* Listed by Underwriters' Laboratories, Minalith also meets Federal Specifications for Fire Retardants. Wood treated with Minalith will not support combustion—it will char slowly where flame touches it, but will not ignite. During a fire, Minalith-treated lumber maintains its load bearing strength without sudden collapse. As a plus-value, Minalith protects wood from decay organisms and insect attack. And Minalith has no undesirable effects on lumber, keeps it clean for handling and completely paintable.

With Minalith-treated lumber readily available, local labor was able to proceed at once. Longview was pleased to note that use of local labor and local materials kept construction tax dollars at home.

Minalith-treated lumber is a product of American Lumber and Treating Company, who also produce Wolmanized* preservative-treated lumber. There are Wolman preservative treatment plants in all parts of the country. For further information write:

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states in ever-increasing numbers. They have found themselves caught in a squeeze as other states, in protest against the new Ohio tax, insist on collecting retaliatory taxes on Ohio-registered trucks. Kentucky, for instance, stops all Ohio trucks at the border until they buy Kentucky plates, which cost from $22 to $300 depending on the weight.

The new Ohio tax affects Ohio trucks and out-of-state trucks equally. But only Ohio trucks have to pay the retaliatory taxes. So Ohio truckers are moving out.

Last week Ohio's Gov. Frank J. Lausche announced that he absolutely would not back down. To give truckers of other states the reciprocity they demand, he said, would mean that only Ohio trucks would have to pay the new tax. This would (1) cut the yield, and (2) "put out-of-state truckers in a better tax position in Ohio than our own truckers." He also said that the controversy will probably not last too long, since, he believes, the principle of weight-distance taxes will soon be adopted by other states (page 129).

Healing the Big Burn

TILLAMOOK, ORE.—The job is slow and tough and very expensive—but Operation Fir Tree in Oregon's Tillamook Burn area goes steadily forward. In 1933, some 235,000 acres of virgin forest in the corner of northwestern Oregon were burned over in one of the worst forest fires of recent times. Much of the same area was ravaged by fire in 1939, again in 1945, and again in 1951. In 1948 the legislature approved a long-range rehabilitation program, and Operation Fir Tree actually got under way in 1949. About a third of the $10-million program is now complete. In addition to seeding and tree-planting, it involves removal of millions of dead trees and creation of quarter-mile-wide firebreaks to prevent any repetition of the holocaust.

A Sweetheart of a Truck that Saves You Money

YOU save with a White 3000 in *many* ways.

In city and suburban delivery service, the short wheelbase, wide tread front axle and short turning radius save so much time in traffic . . . save drivers' nerves, too.

You save on delivery costs because the White 3000 permits use of an extra-capacity body yet reduces over-all length for *more* deliveries per day!

Maintenance savings, too, with the quick, easy power-lift cab for complete accessibility at the turn of the wrist.

And its modern, functional appearance attracts attention . . . stays new . . . year after year. No doubt about the White 3000 . . . it's a Sweetheart!

THE WHITE MOTOR COMPANY • Cleveland 1, Ohio

They like the looks . . . and the payload of the White 3000

Continental Baking Company has modern White 3000's in service in many cities. The exclusive payload advantage of the Whites is important in transport service of baked goods, as well as in wholesale delivery. New Model 3020's in service in New York have 21-ft. 4-in. bodies with only 181½-in. wheelbase.

White 3000

For More Than 50 Years The Greatest Name In Trucks

WHITE 3000 SAVES TIME . . . SPACE IN TRAFFIC

How to "Shop" for Steam

Just because you don't buy it like meat over a butcher's counter doesn't mean that you can't get a good bargain in steam, too. And, with competition squeezing operating dollars, this can mean a lot to management.

Take your own boiler installation, for instance. By present standards, it can be economically obsolete even though purchased not too many years ago. Whether you use steam for power, processing, heating . . . or any combination of these . . . replacement with a modern unit is worth serious thought. For today, steam can be *much* cheaper.

Furnace design is better, firing methods improved, heat recovery equipment is more efficient, and automatic control and steam purification techniques greatly advanced. Result: as much as 30% less fuel can very likely meet your steam requirements. The furnace is more versatile, too . . . you can switch fuels if and when it's necessary. And you'll find savings all along the line. New boilers need less space and, if "packaged", don't cost as much to install. There's economy of labor and maintenance, as well as less down time. In fact, a little "boiler room consciousness" will bring a big payoff in reduced costs. If you are in the market for savings through low-cost steam, call your boiler supplier and discuss your heating and power needs.

Or, for the names of boiler manufacturers who can help you, outline your problem to us. Lukens *knows* boiler builders after 144 years of service as a supplier of quality materials. Address: Manager, Marketing Service, 669 Lukens Building, Lukens Steel Company, Coatesville, Pa.

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INTERNATIONAL OUTLOOK

At midweek **Molotov made a last-minute move on Germany** to prevent the Berlin Conference from ending in complete deadlock.

The Soviet Foreign Minister proposed that the conference set up a committee to study two questions: (1) an extension of trade and communications between West and East Germany; and (2) a reduction of police forces in both zones.

This move may prove to be the bridge to another Berlin Conference. But it doesn't change the East-West picture much. **Molotov had revealed already that Moscow isn't ready now for any important settlements** with the West.

It's hard to tell exactly what Moscow's new game is. And for weeks ahead you'll get different answers to this question from diplomats and observers in the West.

At one extreme is the view that Molotov has used Berlin to launch a new Soviet world strategy aimed at:

• **Europe for the Europeans.** This was the implication of his proposal for a European security pact that would exclude the U. S. and Britain.

• **Asia for the Asians.** Except on Korea, Molotov refused to give ground on any Far Eastern question.

Thus, Moscow aims to get the U. S. out of both Europe and Asia, then integrate the two continents into the Soviet orbit. **In effect,** Moscow would win World War III without fighting it.

It's hard to see how Molotov could figure quite so optimistically—unless he counts on the U. S. suddenly pulling in its horns all over the world. And the Soviet Foreign Minister isn't so naive as all that.

Molotov is probably planning:

• **A defensive policy in Europe.** Stall any solution of the German problem and probably the Austrian problem as well. Meanwhile, try to block the European Defense Community by working on French fears.

• **An expansionist policy in Asia.** Moscow can keep the war in Indo-China going, though without direct Chinese intervention, until a compromise favorable to the Communists can be arranged. Work by infiltration for a gradual Communist take-over in Burma, Indonesia, and finally India.

—•—

A rough, tough scrap is shaping up in Washington over the Randall Commission proposals to liberalize U. S. foreign economic policy (BW—Jan. 30'54,p118).

Opposition is building up in Congress and in the Cabinet.

The White House hasn't shaped up the program it will send to Congress in March. **But you can tell what has a chance of passing,** what hasn't.

• **Customs simplification.** Treasury no longer supports the Jenkins Bill liberalizing customs classification procedures. Action this year is unlikely.

• **"Buy American."** Presidential authority to set aside present rules

might be extended this year. But Treasury, Defense, and Interior oppose it.

• **New executive authority** to veto Tariff Commission findings. Eisenhower has the implied right now to override the commission when it calls for higher duties, but he wants his authority spelled out. Some powerful congressmen would cut the powers he has now. So things may be left just as is.

These Randall Commission recommendations are almost certain to pass.

(1) Three-year extension of the Reciprocal Trade Act; (2) additional Presidential tariff-cutting authority, and (3) new tax incentives, easier anti-trust laws, and broader guarantees for private U.S. foreign investors.

A hot skirmish has developed in Washington over how to get limited convertibility of European currencies.

It all began with a Foreign Operations Administration plan to strengthen the European Payments Union.

The FOA idea is to pour more money into EPU—a grant or a loan—so that it can pay off some of its heavier and more persistent creditors in gold or dollars. Tentatively, the plan would cost the U.S. $600-million.

Those favoring more pump-priming for EPU argue this way:

With EPU put more nearly onto a cash basis, liberalization of intra-European trade will speed up. Also, a start can be made in dropping trade bars that discriminate against dollar imports.

They also say it will facilitate European economic integration. This is needed if currencies are to be made freely convertible on a long-term basis.

Those against the FOA idea insist that it would take the pressure off habitual debtors, let them get by without straightening out their finances. France is one such "habitual debtor."

By contrast, they continue, a direct move toward convertibility with the dollar would force those living beyond their means to cut back.

—•—

John Cabot's sudden resignation as Assistant Secretary of State for Latin America hasn't gone down too well south of the Rio Grande. U.S. officials at the upcoming Inter-American Conference at Caracas will have some tall explaining to do.

It's an open secret that Cabot was forced out by Treasury Secretary George M. Humphrey. The two men disagreed over U.S. economic policy toward Latin America.

Cabot and Milton Eisenhower have been pushing for more aid, more trade, and, in particular, more development lending by the Export-Import Bank.

Humphrey reined in Ex-Im sharply last spring as part of his program to tighten the money supply, funnel more U.S. lending through private banks.

Last week it looked as though Humphrey had eased up on the bank. But Cabot resigned a few days later.

Now it's not clear what's ahead in the way of an Ex-Im lending policy.

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ANNOUNCING

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Compromise?

An uneasy cease-fire, or even coalition role for Reds, might mean gradual communization

The Next Crisis: Who Gets Indo-China

Sift through the reports and pronouncements about the Indo-China war—some of them alarmist, some of them pollyanna—and you come up hard against one of the cruelest U.S. policy dilemmas of the postwar period. The alternatives may not be so sharply defined as some people say—a choice between (1) sending in the Marines or (2) losing Southeast Asia. But at best, Indo-China presents a set of tricky possibilities (above), each loaded with risks for the free world.

• **Tale of Four Cities**—This week, the situation stood like this:

In Laos, one of the associated states of Indo-China, rebel columns were threatening the capital city. While a Communist victory there would be a psychological defeat for the French, it wouldn't alter the strategic picture much. Militarily, Indo-China remains in stalemate, waiting for the politicians to decide its fate.

In Paris, the war is the Number One political issue. To the average Frenchman, the fight has become more hopeless than ever, and pressure on the government to liquidate it—at almost any cost—is becoming irresistible.

In Berlin, Foreign Minister Molotov, backed up by the propaganda resources of the entire Communist world, is playing on French frustration for all it's worth. By holding out the promise of settlement, Russia hopes to demoralize and divide the Atlantic Alliance.

In Washington, there's an air of crisis. Official U.S. policy maintains that there's no substitute for military victory in Indo-China, and that we mean to aid France to the limit. Yet we dare not take the step that would assure military victory—intervention in force—for fear it would trigger full-scale war with Red China. Some Americans believe we are already too deeply involved in the war; others insist we must take even further risks.

• **Not Another Korea**—Comparisons with Korea are inevitable, and they account for some of the confusion. But Indo-China is much more difficult to solve than Korea.

There you had a clear-cut aggression, across an agreed border, Communist against non-Communist. After eight years, the Indo-China war is still colored by questions of nationalism, patriotism, and the familiar Asian resentment of the colonial policies of Europe. There are no sharp boundaries; Communists are all over the area.

France and its allies are in the frustrating position of claiming to be fighting against international Communist aggression, while many of the alleged victims of that aggression aren't at all sure which side they prefer.

• **Paris Battleground**—The immediate future of Indo-China seems to lie on the political, rather than military, level. U.S. intelligence has concluded that the dangers of defeat in the political arena of Paris, where the get-out-of-

Partition?

It's an extreme solution, adds to a defeat for the West.

—and How?

Indo-China sentiment is growing, are greater than on the battlefield.

That's why Secretary of State John Foster Dulles agreed tentatively in Berlin to French Foreign Minister Bidault's plea for a Five Power conference—bringing in Red China—to discuss the chance of truce in Indo-China. Perhaps the only way to keep the French fighting, and to keep the Laniel government in office, is to give Paris an opportunity to test whether an armistice, on what Bidault calls "honorable terms," is possible.

• **The Risks**—Dulles' qualified acceptance of the conference idea is a calculated risk. It doesn't require much insight into the plans of Peking or Vietminh leader Ho-Chi-Minh to assume that honorable terms probably won't be forthcoming now. Things in Indo-China don't look at all bad from Ho's point of view: He's not faced with military defeat; he has the French over a barrel; day by day, he is spreading his influence throughout the country.

It's unlikely, too, that Peking or Moscow wants to call off the Indo-China war, certainly not just now when it's jeopardizing the Western unity.

• **The Outcome**—The French government has no clear idea of what to expect from truce talks, or what conditions it would accept. But it knows it must show a willingness to dicker. These are the possible results: (1) a ceasefire on present lines; (2) a political compromise, perhaps with elections; (3) a partition of Indo-China; and (4) failure, a return to stalemate and limited fighting.

The first alternative is not excluded by the French, and from their point of view it might be the best outcome. But it seems unworkable. There are no fixed battle lines, save possibly in the north around Hanoi. So a ceasefire would mean that the country would be divided into three or four disconnected hunks of territory, each of which would have to be supervised by neutral border commissions. Meanwhile, the Communist virus could continue to work.

The second alternative, a political solution perhaps dealing the Reds into some form of coalition, would be bound to end in creeping communization of the country. In Ho-Chi-Minh, the Communists have a strong man, an almost legendary patriot to many Indo-Chinese. In Bao Dai, the Vietnam chief of state, the French have a weak man whose influence is declining despite all efforts to prop him up.

• **Parallel No Help**—Finally, there's the possibility of a division of Indo-China, Korea-style, along the 16th parallel (the line separating the British and Chinese occupation zones in 1945).

This may be the aim of Ho. It would give him and his Peking allies the rich Red River delta in the north. The offensive in late December that cut Indo-China roughly along the 16th parallel seemed to be designed with this in mind.

For the West, however, partition would be a serious defeat—loss of face in Asia. There would have to be a heavy commitment in troops and retaliatory power to hold the line inviolate. Even then, communism could seep through the jungles almost at will. We would have to backstop the truce line with some carefully planned economic and political assistance schemes to insure Indo-Chinese a stake in free government.

• **Grim Conclusion**—It all adds up to the conclusion that French prospects for a favorable truce—one in which they don't lose half or more of Indo-China—are small. Hence the present

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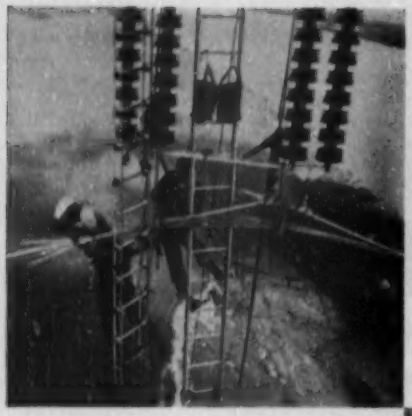

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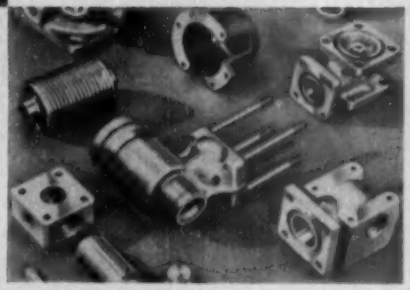

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conviction of most U.S. officials that only Ho's defeat can restore stability and save all of Southeast Asia from being ingested by the Communist world.

Both the U.S. Joint Chiefs of Staff and French commander Henri Navarre believe France can go on fighting as long as necessary, with hope of cracking the Vietminh force—if only Paris will stick in the battle.

• **Too Many Ifs**—But military success involves many "ifs." You have to assume increasing U.S. aid in money, machines, and some noncombat technicians. You have to assume increasing spirit for the fight among native Vietnamese. And you have to assume no further intervention by Red China.

Even with these conditions, moreover, you find many who believe that no decisive military victory is possible at all. These observers think the rebels would just melt into the hills and continue a fluid, harassing, guerrilla war.

• **Thailand's Role**—For the time, then, Indo-China remains a holding operation. And the U.S. is trying to bolster the area surrounding Indo-China as a supplement to its assistance on the battlefield. Thailand has a key place in the strategy.

The Thai government is outspokenly pro-U.S.; it contributed troops in Korea, it has outlawed communism. With money and advice, the U.S. has helped to strengthen the Thai army and has enlarged airfields.

The Thais, with U.S. backing, have been talking up a plan for a "Buddhist Alliance" with Burma and the Indo-Chinese state of Cambodia. The idea would be to build a nucleus of strength to counter Peking's plans for a Communist "Thai People's Alliance" including northern Viet Nam, Laos, part of Burma, even Thailand itself.

Any plans for broadening the defense base in and around Thailand have to consider that the Thai government has been neither popular nor politically secure. Under the best circumstances, Thailand will find it difficult to resist Red infiltration, especially if substantial areas of Indo-China are taken over and a bandwagon psychology in favor of communism develops.

• **First Line**—Thus, Indo-China remains the first line of defense. The U.S. will do all it can to keep the French holding the fort, and, if possible, to break the back of the Red rebellion. But if France can no longer stay in the fight, Indo-China may present the U.S. with sticky and unpopular decisions.

It might then be the choice between sending in the Marines or giving up most of Indo-China. In the first instance we'd risk a hot war; in the other, we'd risk losing support in all of Southeast Asia, unless some sweeping new economic, political, and strategic measures could be developed.

Easing Out Food Surpluses

U.S. maps complex plan to win farm votes and cut stocks without upsetting world trade.

The blueprint for a monster agricultural export-plus-aid scheme is fast taking shape on Capitol Hill and in government agencies. There's hope that a program can be passed this year that will (1) move some $2.5-billion worth of farm surpluses abroad within the next three years, and (2) guarantee a Republican farm vote in next fall's congressional elections.

Behind the plan, of course, is the disturbing—and politically embarrassing—fact of Uncle Sam's bulging basket of surpluses, some $7-billion worth of cotton, wheat, corn, butter, soybeans, and tobacco that Americans have not eaten, used, or smoked up.

Traditionally, the most appealing way to lighten the burden is to sell the surpluses abroad—or give them away if need be. How to do that without outright dumping, which would badly foul free world trade, is just about the only consideration bothering the planners.

• **Back of the Plan**—These developments in Washington and overseas give you a hint of the farm program to come:

• The White House plans to give away surplus crops to countries that otherwise cannot afford to buy them.

• Foreign Operations Administration has programs—already solid—for using farm surpluses to aid development in 14 nations in Asia, the Middle East, Africa, and Latin America.

• Plans for an emergency NATO agricultural stockpile.

• Last week's $5-million cotton-tobacco sale to Finland for marks to be used to buy Finnish goods for nations getting U.S. aid (BW—Feb.13 '54,p157).

• Plans to pay German contractors working on U.S. bases in Spain, not in dollars, but in U.S. farm surpluses.

• An increase in the number of technical missions that Agriculture Secretary Ezra Taft Benson is sending abroad to try to expand U.S. commercial farm exports.

• The mounting pile of bills introduced in Congress that call for outright, wholesale dumping of American farm surpluses.

It's the kind of thinking that could keep the U.S. in the foreign economic aid business on an expanding scale for years to come. It may also, many congressmen hope, remove much of the pressure for some of the more drastic solutions to U.S. surplus agricultural production.

GRAIN for famine-threatened countries may give Administration one graceful out.

• **Emerging Picture**—The pattern of the new farm commodities foreign aid program is beginning to emerge. Crossed wires in the Administration have slowed up release of the details. Benson still hasn't been sold on the aid approach. He wants to move the surpluses through commercial channels and move them faster than could be done under the proposed aid program.

The White House program will almost certainly go through. It has top-level backing in State, Foreign Operations, and the White House. Officials are convinced that farm surpluses can be disposed of abroad in volume only under a carefully planned, long-term aid program. Anything else would mean dumping on a scale that would upset the free world's economy—and its political unity.

The Administration, at least temporarily, has slammed the door on farm sales to the Soviet bloc. Barter deals—like butter for manganese—are still possible, although none is now in the works.

• **Dumping K.O.'d**—The major problem is to avoid dumping. Foreign ambassadors and U.S. exporters alike have badgered State for months, warning the planners that a reckless give-away program would set off a world-wide price war, benefit nobody, and weaken a string of friendly governments.

FOA has been wrestling with the dumping problem for nearly a year now. Section 550 of last year's foreign aid

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bill called for giving away between $100-million and $250-million in farm surpluses. It also banned dumping. As a result FOA, so far, has moved only $99-million of stuff this way. The problem is to make sure in advance it doesn't upset normal trading.

Take the idea of using farm surpluses to pay Germans for work on Spanish air bases. It's a typical problem. There's no food shortage in West Germany. So it's hard to see how the transaction could fail to reduce Germany's agricultural imports from other countries. And, Germany's promises not to cut back normal imports could be bypassed by re-exporting the extra supplies that resulted.

The Finnish deal also brought up charges of dumping. On the surface, it looks as though everyone gains. But competitors of the Finns see it as a subsidy of Finnish exports.

On the other hand, Washington isn't so worried about dumping when it might hurt Iron Curtain economies. Norway, for example, received $2.1-million worth of U.S. surplus soybeans that it would normally have imported from Communist China.

• **New Approach**—The Administration's new surplus disposal program would avoid some of the pitfalls that ripped up the Section 550 operation. For one thing, it would be financed by a separate appropriation from which Commodity Credit Corp. would be reimbursed. Now many countries don't want aid in the form of surpluses when they can get dollars instead. The new program would run for three years, leave more time to find outlets outside of normal trade channels.

Now farm surpluses are sold for local currencies, which in turn are used for local defense costs. It is tough to prove this actually results in an increase in farm product consumption and, hence, isn't dumping. The new plan calls for low-priority development projects in underdeveloped countries with low diet levels with farm surplus grants to finance them. Such projects otherwise would not be started for years. Theoretically, at least, normal trade would not be disrupted. Wages paid Indian workers, for example, to build dams and dig irrigation ditches would be spent almost entirely on additional food and clothing. The final result would be a real increase in national earning power.

One implication of the program is the continuation, even expansion, of U.S. economic aid in the form of dollar grants and loans. These are needed, it will be argued, to finance the dollar costs of the development projects.

• **Safety Valve**—The White House sees the new program merely as a safety valve to hold down surplus accumulation until its hoped-for flexible price

supports start cutting into production. It also hopes to build permanent new markets.

However, the thing could snowball. Flexible price supports might take some time to be felt. And Congress might not approve them, particularly if it thinks surpluses can be unloaded abroad. A permanent, expanding agricultural giveaway program would be popular in the farm belt. Once a big program got rolling, it would be very hard to stop.

• **Pro and Con**—This prospect makes orthodox economists shudder. They fear it would perpetuate artificially high farm price supports, put CCC into state trading in a big way for good, and constitute a major roadblock to progress toward a free-flowing world trade.

But the idea has caught hold in Congress. Many congressmen, facing precarious election prospects this fall, don't see—or refuse to see—the dangers. One bill, introduced by Sen. Andrew Schoeppel (R., Kansas) for example, would let government sell up to $500-million of surpluses abroad each year for soft currencies. Private traders would be allowed to sell on the same basis, the Treasury to redeem the soft currencies for dollars.

The Administration doesn't want any such dumping policy as this, but may have a tough fight keeping this or similar riders out of the final act.

BUSINESS ABROAD BRIEFS

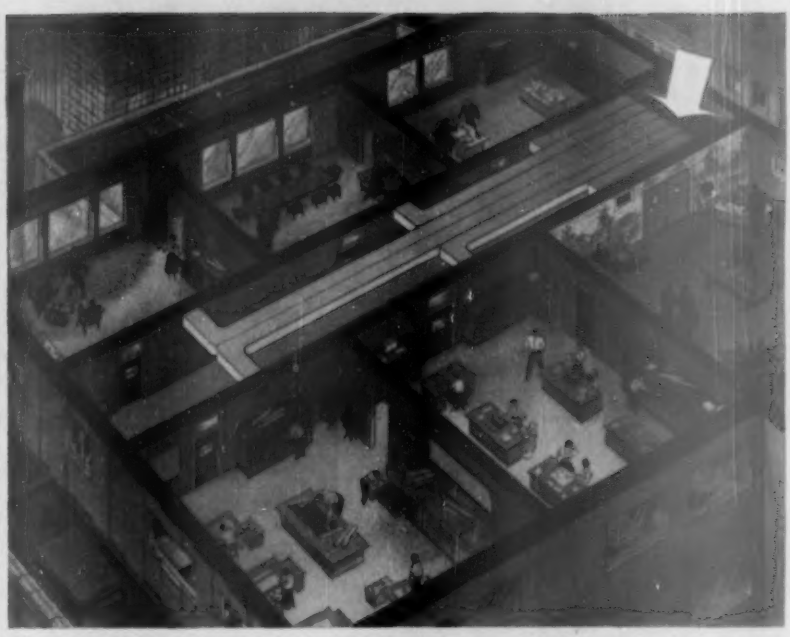
The U.S. plans to get back into the international trade fairs at which the government hasn't been represented since the war. As a starter, Secretary of Commerce Sinclair Weeks has asked for $110,000 to buy space at upcoming fairs in Italy, Brazil, and the Far East. He wants to offset increasing activity of the Russians, who will put exhibits in 60 fairs this year.

•

Canadians—government and business—plan to step up capital investment this year by 3%. In 1953, Canada plowed back 26% of its national product—$6.2-billion—into new plant and equipment. This matched the record outlay of 1951.

•

West Germany has made a sweeping move to liberalize trade with the dollar area by lifting all import restrictions on 2,000 items that made up 40% of the goods brought in last year from the U.S., Canada, and Latin America. Main U.S. items affected by the German move are cotton and tobacco. West German imports from the dollar area in 1953 added up to $571-million.



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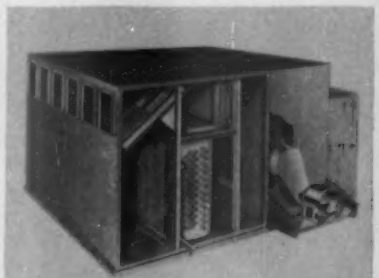

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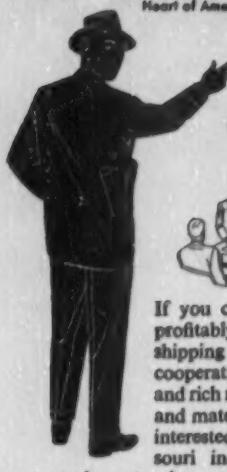

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U.S. Exit from Tin?

Eisenhower's move to shut down the Texas City tin smelter is bad news for Bolivia . . . Steel demand in Western Europe looks sick . . . U.S. company tackles foreign-dominated steel tubing market.

Washington this week is grappling with a ticklish tin problem while Bolivia anxiously watches.

President Eisenhower wants to put the government-owned Texas City (Tex.) tin smelter into mothballs this year. He has asked Congress for $600,000 to close the plant, now winding up processing of 10,000 tons of ore that's being shipped from Bolivia under a one-year purchase agreement.

The Texas smelter—the largest in the world and the only major one in the Western Hemisphere—was built during World War II specifically to handle the low-grade Bolivian ore. After the war, the Texas plant continued to produce for the national stockpile, now brimming over with 40,000 tons above the original goal. With this surplus, the Eisenhower Administration sees little reason for keeping the expensive smelter in production—especially since current private U.S. demand is being met easily by production in other countries.

• **Blow to Bolivia**—A U.S. exit from the tin business would be welcomed in some corners of the globe. Malayan tin producers, for instance, feel a big U.S. stockpile depresses the world market.

But the move would be a hard blow to Bolivia. It has no smelter of its own, has become increasingly dependent on the U.S. plant.

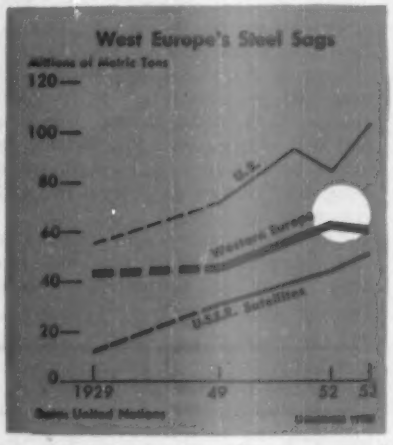
Before the war, Bolivian tin ore exports ran at about 25,000 tons annually. Half of this came from the now-nationalized Patino mines and was shipped to Patino's own smelters in Britain. War changed this pattern. Last year only one-third of Bolivia's 35,000-ton output was smelted in Europe; the remainder came to Texas.

What worries Bolivians now is that smelting low-grade ore—the bulk of Bolivian output—requires a special, expensive process, and facilities outside the U.S. are limited. With the U.S. plant out of business, Bolivians fear they'd have no place to take their ore.

• **Prospect**—Bolivians realize that the U.S. can't keep its costly smelter going indefinitely. But they are asking for another year or two. By then, they hope that diversification of their own economy will reduce overwhelming dependence on tin.

There's a possibility they'll get the temporary reprieve. Indonesia may take up an option on some outstanding contracts and ship the U.S. enough tin to keep the smelter running for a while.

Even if it is finally closed—as seems likely—Washington will try to soften the impact in Bolivia. The U.S. has invested heavily—some $9-million in direct aid and $2-million in technical assistance—in an effort to stabilize Bolivia's chaotic economic and political situation. It's not likely to sit by and watch this money go down the drain.



European Steel Demand

Sagging demand for steel in Western Europe has the economists worried. In a review titled The European Steel Market in 1953, out this week in Geneva, the United Nations Economic Commission for Europe explores the situation—and what can be done.

Looking from 1952 to 1953, the publication shows a vivid contrast between the over-all drop in output in Western Europe (the six Schuman Plan nations, plus Britain, Austria, Sweden, and several smaller producers) and the increases recorded in the U.S. and the Soviet bloc. Western Europe's line in the chart (above) would have been more sickly were it not for a million-ton increase in Britain. Belgium-Luxembourg, France-Saar, and Italy showed pronounced dips; even West Germany's bustling Ruhr produced 400,000 tons less last year than in 1952. And figures don't tell the whole story: Declining demand is further spotlighted by the existence of substantial idle steelmaking capacity in several of these nations.

• **Sickness and Cure**—Part of the problem may be short-term—the end of the

post-Korea sellers' market, reduction of inventory, a degree of price stickiness, especially on internal prices.

But it's the outlook for the longer haul that bothers the U. N. economists.

They see a chronic failure of domestic demand to expand over the years, especially in the Schuman Plan countries. Per capita steel consumption in Belgium, Luxembourg, and France, for example, is less today than it was in 1929; West Germany shows only a piddling increase. By contrast, steel consumption per person in Britain, the U.S., and especially the Soviet Union, has spurted over the past 25 years.

The U.N. experts believe the trend can be reversed; it warns that it would be "fatal" if Europe decided to adjust production downward to meet a permanently shrunken demand. It counsels steel men to consider their price structure for lower costs and more stability. In the end, the economists come back to the familiar theme of mass production—which might someday create "vast, new markets" for washing machines, refrigerators, cars, and housing.

•

Heavy Steel Tubing

Europeans had the U.S. market for heavy-wall seamless steel tubing pretty much to themselves during the postwar period of steel shortage. Few U.S. companies felt like bothering with it; demand for this heavy-duty tubing was both limited and spasmodic. Customers were mainly oil, gas, and chemicals companies. They ordered the tubing in relatively small amounts, at widely spaced intervals. U.S. companies preferred the longer, smoother production runs they could get by making other kinds of tubing.

Now Barium Steel Corp., New York, has decided the field looks promising after all. The company is putting its chips on (1) foreign help, (2) a lower price, and (3) an expanding market.

• **Plans**—Barium started looking for a way to get into the heavy tubing business last year. As a starter, it bought a steel mill from Pittsburgh Steel Co. Then it went shopping abroad for machinery and experience. It found both at Innocenti, S. A., of Milan, Italy. It ordered $1-million worth of machinery from the Italian company, expects delivery in June. An Innocenti engineer was in the U.S. this week to help Barium work out installation plans.

Barium figures it can bring the U.S. price of heavy-wall tubing down from $250 a ton and up—a price dictated largely by tariffs and cross-ocean transportation—to $200. The company is betting, too, on increased demand from the oil industry. Oilmen are becoming more and more interested in heavy-duty tubing for deep drilling.

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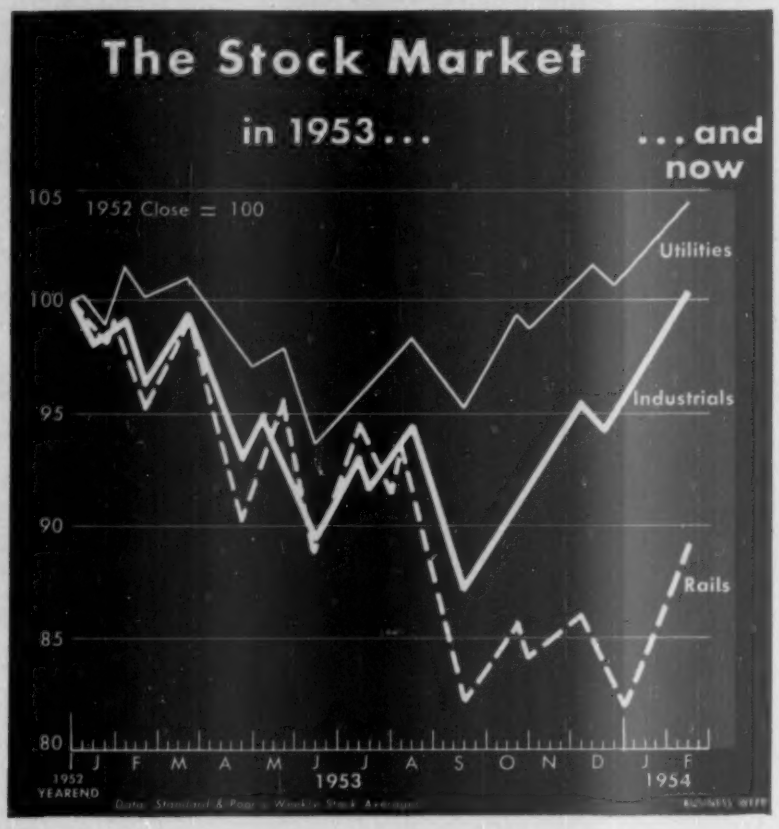
THE MARKETS



How Good an Oracle?

In the first half of 1953, the stock market did a lot to restore investors' confidence in its ability to foretell what is coming in business.

During that period—while both corporate profits and industrial activity were climbing—stocks ignored these favorable factors and started down (chart, above). The decline in utilities lasted until June; industrials kept slanting downward into September; and rails softened until just before Christmas.

As a seer, the market hit it on the nose for the first six months. Before the end of the year, auto production was off, steel output dropped by around 25%, and smaller freight traffic brought railway layoffs. Washington warned of a "rolling readjustment" in business.

• **Cloudy Crystal Ball**—Now investors wonder whether the stock market in the second half will be as accurate a forecaster as in the first half.

Against a background of declining business, share prices in the second six months of 1953 started up. They were faltering the first half of this week. But prior to this wobble, their general course had been upward, with many individual industrial issues reaching the highest levels in a quarter of a century.

And so investors are asking:

Does the upturn mean that the market indorses the idea that we are going through only a "rolling readjustment" of business, and that this will be completed faster than previously thought, or do rising share prices merely reflect such favorable developments as (1) ending of the excess-profits tax, (2) lower 1954 federal income tax rates, and (3) the strong bond market, which makes current stock yields more attractive?

• **What's Ahead?**—The trouble is you just can't be sure what it is that share prices are signaling. You may recall that throughout 1953, market observers were stressing the value of utility stocks as "defensive" shares in time of business readjustment (page 56). Standard & Poor's utilities stocks index now stands 11.5% above its 1953 low recorded last June, and 4.4% above the level at the beginning of 1953.

Industrials, on the other hand, are generally vulnerable to a business slump.

The industrials began sliding well in advance of such tangible signs of business readjustment as slower automobile assemblies and a drop in steel production (BW–Feb.13'54,p60). But–after hitting a 1953 low in September–the industrials began moving upward, even though manufacturing activity continued its decline. The S&P industrials index now stands 14.9% above its 1953 low and ⅞ of 1% above its level at the start of last year.

• **Rail Trouble**–Railway shares showed the steepest decline of the three stock groups last year. There was good reason. While net income of Class I roads last year ran ahead of 1952–$875-million vs. $836-million–carloadings in the final four months slumped sharply. As a result, net for these months was 24.6% less than in the corresponding months of 1952.

The S&P railway shares index, while 8.5% above its 1953 low, still stands 10.9% under its level at the start of 1953.

Seventh Record Year for Dividends

For the seventh consecutive year, dividend payments by common stocks listed on the New York Stock Exchange hit a record high.

Cash dividends over the past year were almost $5.9-billion, up 3.6% from 1952. Dividends were paid by 90% of the issues listed. Of the 975 dividend-paying companies, 330 made higher payments in 1953 than they did in 1952. Among the issues that showed the highest percentage gain in dividend payments were the electrical equipment companies, with a 19.5% gain over 1952; aircraft companies, 17.5%; and utilities, 12%.

As in 1952, a large share of the gain was concentrated in a few industries. Chemicals, petroleum (including natural gas), and utilities, with 24% of the dividend-paying shares, accounted for 45% of the total dollar amount paid. If you subtract these three industries and 23 electrical equipment companies from the total, the year's dividend payments show a decline of $10.9-million.

The softer spots in the picture were the textiles, down 14.1% from 1952; farm machinery, down 10%; and U.S. companies operating overseas, down 15.1%.

Stock Group	*No. of Issues in Group*	*No. of Dividend Payers*	*Higher*	*Same*	*Reduced*	*Estimated Dividends (In millions) 1953*	*1952*	*% Change 1953 vs. 1952*
Aircraft	26	21	13	9	2	$63.0	$53.6	+17.5%
Amusement	24	22	8	9	5	55.3	56.6	− 2.3
Automotive	70	59	19	35	10	541.0	542.1	− 0.3
Building trade	30	29	7	11	11	77.9	79.7	− 2.3
Chemical	86	81	24	42	16	629.7	607.8	+ 3.6
Electrical equipment	23	22	6	13	3	189.8	158.8	+19.5
Farm machinery	7	7	..	2	5	56.9	63.2	−10.0
Financial	33	32	12	12	8	134.4	120.9	+11.2
Food products, beverages	68	63	14	37	14	226.1	225.9	+ 0.1
Leather, leather products	9	7	1	6	..	19.5	18.8	+ 3.7
Machinery, metals	107	98	35	37	30	210.2	202.9	+ 3.6
Mining	40	32	9	11	16	207.3	222.4	− 6.8
Office equipment	10	9	3	2	4	34.6	34.9	− 1.1
Paper, publishing	38	34	10	18	6	110.8	106.3	+ 4.3
Petroleum, natural gas	51	49	23	23	3	990.1	939.4	+ 5.4
Railroad, railroad equipment	81	67	26	35	6	309.7	284.7	+ 8.8
Real estate	10	10	6	3	1	17.3	18.2	− 5.0
Retail trade	71	66	11	43	13	251.7	278.2	− 9.5
Rubber	9	9	4	5	..	55.9	53.2	+ 5.0
Shipbuilding, operating	10	8	1	3	5	13.7	14.8	− 7.3
Steel, iron	37	33	11	13	10	265.2	260.3	+ 1.9
Textile	44	38	12	16	12	68.1	79.2	−14.1
Tobacco	15	14	2	10	3	82.7	82.2	+ 0.6
Utilities	106	101	58	39	6	1,039.5	928.1	+12.0
U. S. cos. operating abroad	24	17	4	5	12	60.7	71.4	−15.0
Foreign companies	17	15	4	8	4	119.7	123.0	− 2.7
Other companies	23	21	7	9	6	43.1	43.0	+ 0.2
Totals	1,069	964	330	453	211	$5,874.2	$5,670.1	+ 3.6%

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The Unions Play It Safe

● So far this year, labor's demands for wage increases have been very modest. Many unions have even been content to go without any increase at all.

● Labor knows it can't ask for too much in a period when business is sliding off, inventories are high, and market competition is getting hot.

● This wary bargaining pattern may well last throughout 1954.

Probably the one thing employers want to avoid most of all this year is real bargaining pressure for another sizable wage increase. In a competitive market and at a time when profits are dropping, prices are a major concern for management—they've got to be held, if not cut. Consequently, employers have no place in their plans for another big boost in labor costs.

Watching the first brisk flurry of 1954 bargaining settlements, they feel encouraged. While there is little doubt that wages are going up again, the prospect now is one of moderate increases—with more unions signing up without pay boosts than in any year since 1949.

So far, there has been only scattered union pressure for more than just routine wage increases this year. Most increase demands have been for a few cents at most. Surveys in government and private contract-gathering agencies show an unusual number of new contracts without any increase in pay, and a predominance of small raises in the other agreements. All in all, the signs have been good—so far.

The big question is: Will today's bargaining set the pattern for 1954?

• **The Picture**—No major contracts have reopened on wages so far. The real April-through-September collective bargaining season is still weeks away. But the first results of 1954 negotiating are interesting and important all the same. They fall into a bargaining pattern that can be expected to last for months, and that could turn out to be the pattern for all of 1954.

So far this year:

• Wage increases have been lower than in recent years. Strongly influenced by softening business and rising unemployment, they average under 8¢ an hour. There have been a few—a very few—big raises, but a significant 10% of all agreements filed with the Bureau of Labor Statistics have provided for no raise at all this year.

• In place of cents-per-hour increases, many contracts have boosted health-and-welfare benefits or provide for increases in monthly pension payments—with employers paying the added cost. In some hard-pressed industries, notably textiles and shoe manufacturing, unions haven't even insisted on these "fringe" gains at the bargaining table; they have simply agreed to continue 1953 contract terms in effect during 1954.

• Bargaining is, for the most part, more peaceful. The government's strike figures for January were off one-third from the same month a year ago—a reduction interpreted in industrial-relations offices to mean that unions are making a less forceful stand for bargaining gains this year.

• **Example**—Take the railroads, for instance. Operating brotherhoods demanded a whopping 30¢-an-hour raise late in 1953; they cited statistics to show why they had to have that much. But three major unions, representing 80% of all operating personnel, have now signed new contracts for a flat 5¢ raise Moreover, for the first time in years, the parties have kept their negotiations out of Washington's hands.

That's a special case, yet it is typical of many wage settlements negotiated in the first six weeks of this year.

• **No-Raise Pacts**—BLS does not go into detail on its file of contracts, but a private advisory service for employers, the National Foremen's Institute, last week broke down the contracts filed with it in January. Its analysis has much to say about the 1954 economic scene.

According to NFI, 8% of all contracts filed with it provided for raises of 11¢ an hour or more; 20% increased rates either 9¢ or 10¢ an hour; 50% boosted wages 5¢ to 8¢ an hour; 10% hiked pay 4¢ an hour or less; and 12% provided for no raise at all.

According to the institute's figures, which in the past have been in line with national trends, January raises this year averaged 7.4¢ an hour in contracts filed with NFI, as compared with an average 9.7¢ in January, 1953. NFI also noted that 72% of all January contracts in its files were for 8¢ hourly raises or less.

Among the no-raise contracts were pacts negotiated by CIO's packinghouse workers and Hygrade Food Products Corp.; auto workers (CIO) and Renaud Plastics Corp.; rubber workers (CIO) and American Hard Rubber Co.; and AFL's cement workers and Wagner Quarries Co. Virtually all textile contracts failed to provide hikes, and the CIO textile workers' policy committee last week urged its other locals not to go for higher wages at this time.

• **Raises**—Where raises are being given, most are along the lines of the 5¢ increase on the railroads or the 6¢ settlement between the United Chemical Workers (CIO) and Merck & Co.—reached after a 47-day strike.

There are exceptions. The United Steelworkers (CIO) won a 15¢ raise to end long and hard strikes against Continental Can Co. and American Can Co. plants. The International Assn. of Machinists (AFL) negotiated a new contract—without a strike—for an 11¢ hourly raise and what IAM claims is a 26¢ "package" increase for 23,000 Pratt & Whitney employees.

• **Ahead**—Obviously, this means that where possible the bigger unions are going after bigger raises. Their bargaining position will be reinforced by the settlements so far in an average 5¢-to-10¢ range, and by the productivity raise of 5¢ an hour due Walter Reuther's United Auto Workers (CIO) in May—as part of UAW's five-year contract, which runs to mid-1955.

The 5¢ to be added automatically to UAW pay becomes a must for other unions, and a mark to be topped. Particularly, the steelworkers will be going after that much and more—money and prestige—through Reuther's rival, David McDonald, the steelworkers' president.

A 5¢ raise would be nothing for McDonald to boast about (compared with the 8.5¢ boost last year), so he'll be going for other benefits, as other unions are doing.

In place of a thumping wage hike, McDonald might drive to raise pensions somewhere up close to the $137.50-a-month maximum now being paid in the auto industry. The steel pensions were first won in another slump year—1949, when the bargaining emphasis was also on playing it safe.

Labor Peace: Remote as Ever

Closer cooperation between AFL and CIO looked probable six months ago. Now it looks unlikely. AFL leaders lag on making no-raiding agreement effective.

What looked to many like an attractive bet six months ago—peace within the labor movement—is now a very long shot. Last week's quarterly meeting of the American Federation of Labor executive council showed that. AFL's policy-making hierarchy barely mentioned a no-raiding pact with the Congress of Industrial Organizations during a Miami Beach meeting; it took no action on the agreement.

As a result, the no-raiding pact—highly touted last year and nominally in effect last Jan. 1—is still no more than a scrap of paper.

• **Distractions**—Ordinarily, the midwinter meeting of AFL's executive council in Miami Beach—at an ocean-front hotel not far from the Hialeah Park racetrack—is a "working vacation" for the 17 Federation council members. This year was no exception. Formal work was limited to two hours a day, from 10 a.m. until noon. While a lot went on behind-scenes, it didn't tax AFL's officialdom. The speedup policy of last year's AFL convention was nowhere in evidence.

With such a schedule, the agenda for the council was not disposed of until the second day of the second week.

What happened was a study in contrasts. On all matters dealing with broad problems of national and international affairs, the council spoke with one clear, firm, aggressive voice. On those touching on its own internal affairs, the voice wavered or was silent.

This demonstrated once again that AFL is simply a loose federation of autonomous unions—and that the unions yield little of their independence of action to the federation itself.

• **Union Rivalry**—Take, for instance, the important matter of AFL-CIO jurisdictional peace. Since Dec. 16, CIO's president Walter Reuther has been ready to produce no-raiding oaths signed by heads of unions representing 98% of the CIO membership. However, Reuther—fulfilling a pledge to unions affiliated with CIO—has demanded that AFL also produce "substantial" commitments to go along with the peace pact (BW—Dec.26'53,p74).

Two months ago AFL's president George Meany assured Reuther that efforts to collect AFL signatures would be speeded, so that a spectacular mass signing of a no-raiding agreement by AFL and CIO union presidents could be arranged early this year. Last week, Meany announced that he has obtained pledges from 40 of the Federation's 111 affiliates. He would not say which ones, or estimate the percentage of total AFL membership covered by the 40 unions.

Meany was plainly unhappy about the situation. But, he philosophized, the problem of AFL-CIO rivalries is so old that a further delay of a few weeks, or a few months, is not grievous.

• **CIO Impatient**—CIO is beginning to wonder whether AFL can ever pull together no-raiding pledges from a "substantial" part of its affiliates—including such holdouts as Beck's Teamsters, the Metal Trade Dept.'s 15 unions, and the Building & Construction Trade Dept.'s 19 affiliates. As far as CIO is concerned, no agreement will exist unless the Teamsters agree, in advance, to comply with it. The same applies to the International Assn. of Machinists and others of the metal trades and building unions.

Just a week or so ago, the Machinists, for instance, announced a plan to try to organize all aircraft employees—a plan that will mean jurisdictional feuding with CIO's Transport Workers Union, which now represents many airline employees. And another AFL union, the Upholsterers International Union, said flatly that it would not commit itself to a no-raiding agreement covering the United Furniture Workers (CIO), its principal rival.

With situations such as these standing in the way of an effective truce, the probability of AFL and CIO leaders shaking hands over a signed and effective pact barring raids now appears remote, indeed.

• **Shaky Arbitration**—The outlook for effective machinery for handling raiding and jurisdictional problems between AFL unions appears little brighter, if any. The council last week adopted a compromise plan for settling jurisdictional disputes—one calling for binding arbitration by a three-man panel, but only for unions that voluntarily accept the arbitration procedure.

This is a step forward, in that it is the first time AFL's executive council has actually agreed to give the power of decision to an outside agency. However, the limitation—that affiliates of AFL may agree to participate or ignore the whole machinery—makes the future effectiveness of the procedure pretty doubtful. Beck's Teamsters and other powerful unions are likely to stay out of the disputes-settlement program. If they do, it will be almost meaningless.

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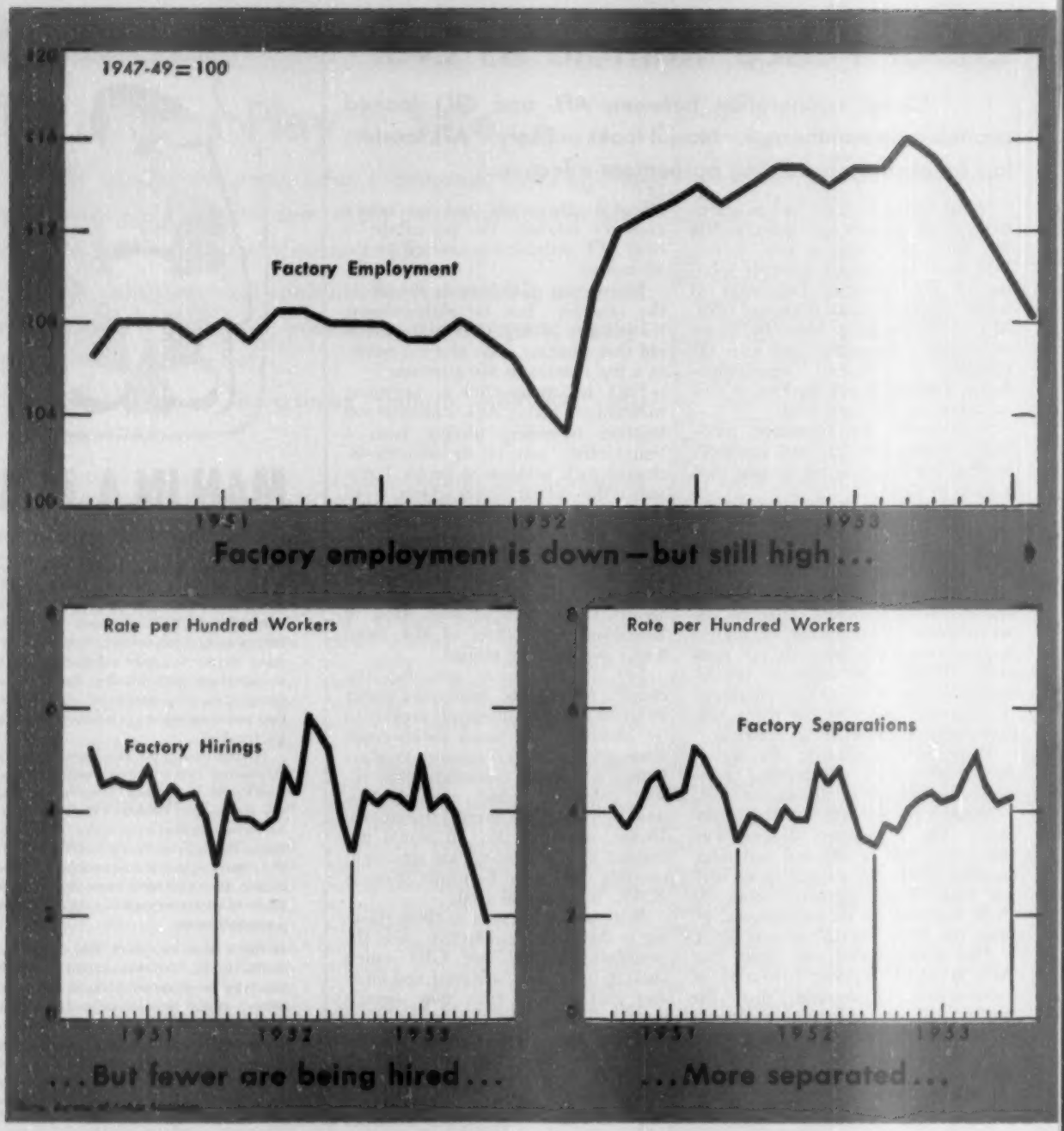


The Labor Market: The Accent Is

A close look at the nation's labor market figures for the fourth quarter of 1953—last full set of statistics available—is bound to concentrate on employment: hotly debated now and closely involved in labor and management planning for wage bargaining in the months just ahead (page 156).

Some facts stand out:

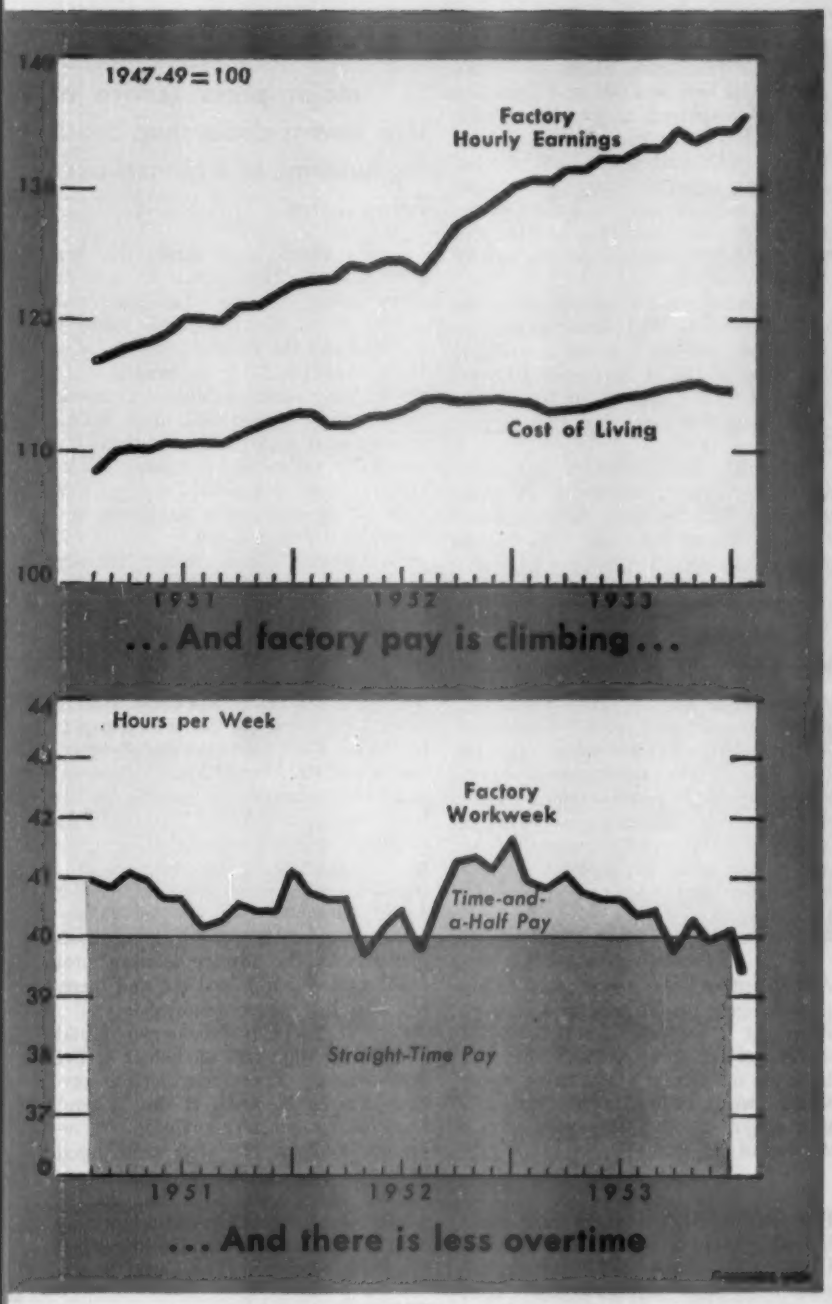
• Employment in manufacturing industries was off sharply at the year's end—but was still at a high level, the highest reported for December in any postwar year except 1952 (chart, upper left).

• Living costs were on a plateau in the final quarter of 1953, while factory hourly earnings climbed a little higher (chart, upper right).

• Factory hiring dipped way down, while the rate at which workers were laid off—or quit jobs—ran substantially higher (charts, lower left).

• The factory work week continued the decline that had characterized its movement throughout 1953. This is a significant downtrend, because it means a cut into the take-home pay of many workers who had been getting overtime (chart, lower right).

• **Pattern Holds**—The Bureau of Labor Statistics figures show a continuation of the trends in employment that began in mid-1953 (BW—Nov.28'53,p172). After settling through the latter part of last year, the employment total dipped again



ls on the Downbeat

in January. BLS reported the decline to be "appreciably larger than usual for this time of year." But it added that the 47.7-million total employment in January "was the highest for the month in the entire postwar period, with the single exception of January, 1953."

BLS' quits-and-hirings statistics—the "separations" figure—are always a good guide to what is happening in the labor market. Factory hirings dropped to a low of 1.9 workers per 100 employed in December, as compared with 3.0 per 100 at the end of 1951 and 3.3 per 100 in December, 1952. All industry groups with the exception of rubber showed reduced hiring.

The reduced hiring—indicating a decline in job possibilities—began in the late summer last year, and outran seasonal trends.

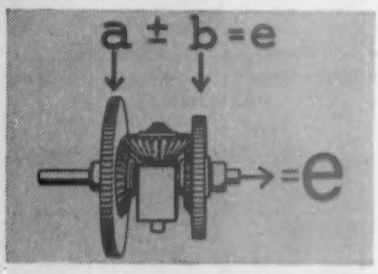
• **Separations Up**—Meanwhile, quits and firings ran substantially higher during the final quarter of 1953 than in

Translating figures into wheels

• **Most engineers** laugh at the copywriter's expression "mechanical brains". To the layman, however, the speed and accuracy of computers is so unbelievable that they think only of the instruments as robots.

• **There is no mystery** to the advances in cybernetics (the science of computing machines and controls). The machines don't think but they do compute solutions to problems by responses to data fed into them.

• **Take the simple principle** that the rotation of a shaft or a gear can be used to transmit a value or a change in values rather than merely transmit power, and you get the basic idea of mechanical computers. The differential adds the total revolutions of two gears – or subtracts the total revolutions of one gear from the total revolutions of another gear – and delivers the answer by positioning a third shaft. It produces a continuous series of answers as the inputs



change. Other mechanical devices can multiply, divide, integrate and solve various other mathematical problems – and combinations of these components can work out solutions to complex formulae. Electrical and electronic, hydraulic and magnetic components can be made to do similar functions and complete computers are built by combining the components best suited by size, weight or physical reliability to the requirements at hand.

• **Sound engineering knowledge** in these fields plus skilled technical ability to make precise parts and assemble them accurately enables several companies in the country to build these instruments.

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the corresponding months of the two previous years.

As the year came to an end, total separations were at a rate of 4.3 workers per 100 employed, as compared with 3.5 per 100 at the end of 1951 and 3.4 per 100 in December, 1953. Most manufacturing industry groups showed an increase in layoff rates, and the December layoff rate was about double the average for the month since the end of World War II.

The factory work week dropped at the end of 1953 to 40.1 hours a week as compared with 41.7 hours a week at the close of 1952. Last week BLS reported a further decline, in January, to 39.4 hours—1.6 hours less than a year ago.

Although most workers lost overtime hours, and time-and-a-half overtime pay, BLS said gross manufacturing earnings averaged 6¢ an hour higher than a year ago.

LABOR BRIEFS

A 4¢-an-hour raise for 8,000 workers in eight canneries and on 10 plantations has settled Hawaii's pineapple wages for two years. The International Longshoremen's & Warehousemen's Union, which signed without a raise in 1953, agreed to take the 4¢ increase this year and to pass up a raise in 1955—in view of the uncertain economic outlook for the industry.

•

AFL painters in St. Louis are studying paperhanging on the side, in a 30-week course at a vocational school. Their union and the Paint & Wallpaper Distributors of Greater St. Louis are sponsoring the program—because there is a shortage of union paperhangers and a surplus of painters.

•

Harmony in AFL is under new strain following charges by the International Chemical Workers (AFL) that the International Assn. of Machinists (AFL) is raiding it at American Cyanamid Co., Bound Brook, N. J. ICW has represented the plant workers since 1939. IAM recently petitioned for a representation election on craft lines, which ICW says would mean "23 separate unions—some with as few as two members—in the plant."

•

White-collarites are being organized by AFL teamsters in St. Louis. The union is out to sign up 2,025 office employees of truck lines. It has broken the ice—after a three-week strike—with two lines employing 22 cashiers, rate clerks, and other white-collarites.

Labor vs. Labor

Major press service of U.S. unions closes shop pending outcome of a quarrel over firing rights.

Labor faced labor across the bargaining table this week. It was an embarrassing situation for all concerned.

Essentially, the battle was between the staff and the management of Labor Press Associated—an organization set up to keep union newspapers around the country supplied with news. LPA's management wanted the right to fire employees for economy reasons. LPA's staff maintained it should not get that right. Bargaining this week got nowhere. LPA shut down.

• **Background**—There are only six men on LPA's staff. The outfit was established in 1949 as a rival to the Federated Press, which was boycotted by major unions because of alleged Communist domination. Federated Press still serves a list of independent unions, while LPA works for union newspapers of AFL, CIO, the railroad brotherhoods, and the United Mine Workers.

LPA's management centers in its board of directors, which is made up of editors of union papers that subscribe to LPA's service. Last summer, the board hired a new administrator for LPA. To make room for his $9,000-a-year salary on LPA's budget, the directors moved the former administrator one rung lower and fired the staff member with the lowest seniority.

CIO's American Newspaper Guild jumped into the fray on behalf of the staff member. It protested that if anybody was to be fired, it should have been the former administrator. An arbitrator ordered the staff man hired back and paid $2,000 in back wages.

Two weeks ago, LPA ran out of money and refused to ask subscribing unions for more until the Guild granted the firing privilege. The Guild hasn't.

The Pictures—Aero Service Corp.—102; Bert Corman—112 (top rt.), 112 (bot.), 113; Engineering & Industries Experiment Station—124 (top), 125 (ctr.); Ford Motor Co.—29; Irving Geis—173, 174, 175; General Electric Co.—100; I.N.P.—27; Bob Isear—112 (top lt.); Herb Kratovil—116; Edith Miller—74, 76, 78, 80, 125 (bot.); Sovfoto—28; Todd Co.—120; U.P.—140, 178; U.S. Weather Bureau—125 (top lt., rt.); W.W.—31 (lt.), 149; John Zimmerman—Cover, 44, 45, 46.

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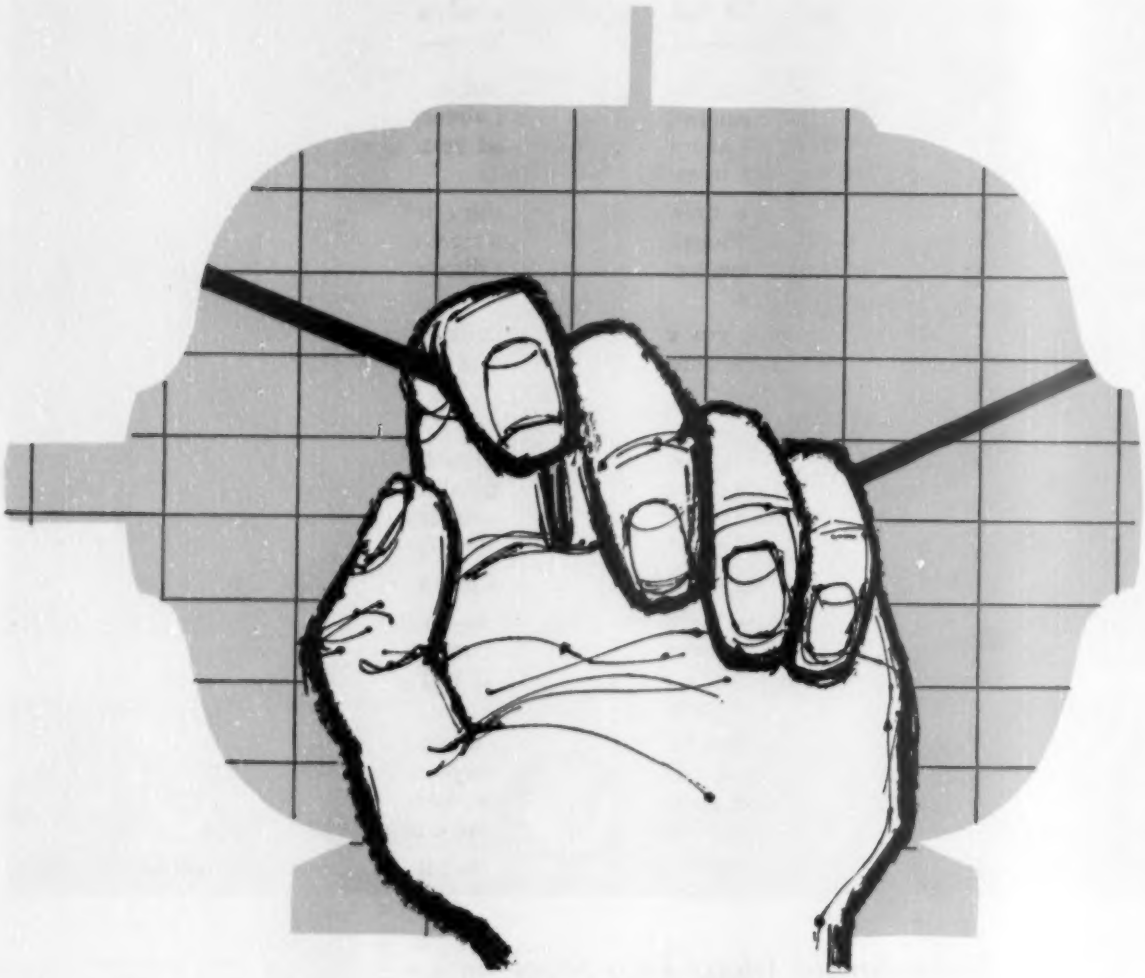

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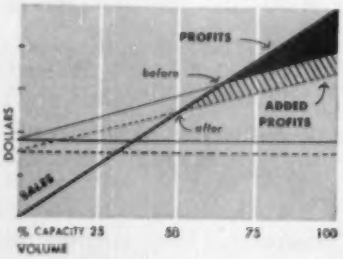

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PERSONAL BUSINESS

BUSINESS WEEK
FEB. 20, 1954

You had better act now if you plan to send children to camp this summer. Most camps are 75% booked already; enrollment in the Northeast area is 19% above what it was last year at this time. Delay might limit your choice more than you like.

At the same time, beware of rushing into a decision on a specific camp. Care and thought in choosing the right environment for your child's personality and temperament, say camp directors, can pay off in real value for his whole life.

That means **you should avoid picking a camp for prestige alone**—because, say, Mrs. Jones picked it for her kid. It may be best for hers, worst for yours.

First question a parent should ask himself: **What does my child need?** Whether it's security or discipline, group-living experience or independence, you can find a camp to supply it—either in a primitive outdoor way or on the "country club" level.

But how can you be sure a certain camp will fill your child's needs?

That's where the thorough approach—on your part—comes in. Talk with the camp director, question him closely on routine and philosophy. Find out what kind of care your child will get in case of illness and from whom, for example.

Be sure to have the child meet the director before you decide. Most good directors will insist on that anyway—they usually can tell better than you whether a child will fit into that particular camp. Also, it keeps the child from arriving at a new place as a complete stranger.

Once the camp has proved to you that it has a good staff, put your confidence in it to care for your child as you want it to.

Finding a good camp is easier than it sounds. **Most metropolitan newspapers and department stores have camp-referral services or bureaus.** Also, American Camping Assn.—343 S. Dearborn St., Chicago, Ill.—can tell you who can help you in your area.

Generally speaking, you don't have to worry about the way camps are run. **Most operate on high standards of care, safety, health, and guidance,** with carefully picked staffs.

However, American Camping Assn. stresses that you keep three things in mind:

- **Be wary of salesmen;** good camps don't need to be sold these days.
- **Shun camps that offer "deals"**—like a $25 cut in price for recommending another child.
- **A complete turnover in staff** from year to year is an unhealthy sign.

If a camp passes these tests, you can usually rely on it. Many good ones are run and staffed by people in education or social service work who insist on high standards. You'll most likely find their philosophy to be that camping is a vital factor in the educational, social, and emotional growth of children—on a par with the influence of a schoolteacher.

The trend now is for youngsters to spend a full eight weeks in camp. Private camps particularly encourage that. For that length of time, you can expect to spend from $600 to $1,000 in a private camp.

It will cost you considerably less in camps run by organizations

(Boy and Girl Scouts, churches, YMCA, etc). They are partly supported by community funds and are usually as good as private camps.

Don't assume that a high-priced camp is necessarily the best. It may have fancier equipment, but that doesn't make the camp—the staff does.

If your child hasn't been away from home before, **have him spend a night with a relative or friend before he goes to camp.** Even so, he'll probably be homesick for a week or so, until he gets adjusted.

You can do a lot to help. Be sure to write him often, letting him know everyone's all right, including the cat. Don't play on his emotions by saying you miss him terribly.

Expect his letters to be skimpy as to what he's doing. Rest easy if they read something like this: "Dear Mother and Dad: It's letter-writing time so I'm writing a letter. Love, Joe."

Camp directors say that's a sure sign he's happy—and the best proof that your money has been well spent.

—•—

Greatest danger faced by motorboat owners is fire and explosion from gasoline engines. The only real preventive is extreme care and caution.

One answer is a diesel engine, which burns less volatile fuel. But the problem has been to make one practical for installation in small craft. Weight and bulk have been the main obstacles.

Detroit Diesel Division of General Motors Corp. claims this week that it has licked both problems. It has developed a new four-cylinder diesel, called the 4-51, which can be installed in a boat as small as 24 ft. The company claims its engine has speed and maneuverability, will drive a 36-ft. Chris Craft at 21 mph.

The motor costs considerably more than a comparable gasoline engine —around $2,500. Offsetting that are diesel operating costs. Few repairs crop up in diesels, fuel runs at about half the cost of gasoline.

The company also has a **two-cylinder diesel as an auxiliary engine for sailboats.** It sells for around $1,700. Both engines are available at all GM marine dealers.

—•—

Breeders of cocker spaniels got a shot in the arm last week: For the first time since 1941, a cocker won Best in Show at the Westminster Kennel Club dog show. That's the highest honor in dogdom.

But this will not put cockers in the No. 1 popularity spot soon, if at all. **Beagles are first**—and the experts predict that they will stay there for a while—even though a beagle hasn't won Best in Show for years. (Cockers are second, boxers third in popularity.)

—•—

Accidents have replaced disease as the biggest threat to life of American children and teenagers. As a result, Northwestern National Life Insurance Co. has added an automatic extra accidental death benefit to seven of its juvenile policies, beginning at age one.

The new clause pays 50% additional in case of death from accident. Formerly, no additional benefit was incorporated prior to age 15.

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clues

BOOKS

Year by year the oil industry has ... well to consumer.

In this period	1911-1920	1920-1926
This was the situation	Lots of oil was being discovered	New-born auto market was soaring
. . . which brought about these events	Crude oil producers expanded into refining	Refiners became wholesalers, then retailers
. . . for these business reasons	1. To provide outlets for new crude 2. To get other sources of profits in order to level out margins as discoveries made crude price fluctuate violently	1. To create big, new gasoline distributing system 2. To get into the most lucrative end of the business

For Integration, There's

Oil is a peculiar industry.

On the one hand, it's an industry where the raw material producer—rather than the processor—has the widest profit margin, and where you don't need an industrial organization to strike it rich. Lone-wolf wildcatting still has some of the aspects of a gold rush.

On the other hand, oil is the prime example of a highly integrated industry. Most of its products reach the consumer via companies organized to perform all phases of the business—from the well to the tank of your car. Only a few other industries have this setup—and then to only a limited degree.

• **Origin and Motives**—How and why did the oil industry get that way? That's the question that two professors at the Harvard Business School—John G. McLean and Robert W. Haigh—try to answer in a thoroughgoing, 728-page book, The Growth of Integrated Oil Companies, published this week by the B-School's Division of Research.

There's no quick, glib answer to the questions. McLean and Haigh take off from the thesis—which they later prove—that something more than the aggressive tendencies of money-hungry oilmen has shaped the industry since 1911, when the Standard Oil trust was broken up.

They are able to muster an army of complex business reasons for the way in which crude producers became marketers, refiners became producers, marketers became refiners. BUSINESS WEEK has put these major trends spotted by the authors into the illustration above, to give a synopsis of the industry's history since 1911.

become more integrated—from Here's why:

1926-1935	1935-1941	1941-?
Auto expansion started leveling off — then came the Big Depression	Proration of crude output was spreading	War — hot and cold
1. Refiners pushed hard for wider marketing areas 2. Producers built refineries, moved into marketing	Refiners started major drive to expand backwards into crude production	Last of major refiners became producers
1. Producers needed more outlets for crude, refiners for gasoline 2. Both needed captive outlets to protect them against intense competition	1. With crude rationing, refiners had to assure themselves of supply 2. State control of crude production, preventing oversupply, made profits for primary producers more stable than for refiners or marketers	1. High taxes, especially EPT, encouraged use of funds for tax-favored oil exploration and production 2. Need for supply of crude to meet heavy oil demands became obvious

Nothing Like Oil Companies

• **Fluid Lineup**—You have to remember, of course, that the oil industry and its growth is much more complex than the illustration indicates. For one thing, there are companies that represent just about every combination of the four main business functions—producing, transporting (pipelines), refining, and marketing. Some cover only one phase; others cover two or even three but stop short of the fourth.

Besides that, the situation is far from static. New companies are being formed, and old companies are branching out all the time. Even a company the size of Standard Oil Co. (Ohio) waited until World War II to complete its integration by getting into crude production.

Today, Standard Oil Co. (Kentucky) is almost solely a marketing company and, at the other extreme, Amerada Petroleum Corp. has grown fast solely as a producer. Still, almost all of the big companies are producers-refiners-wholesalers-retailers.

• **The Whys of It**—Point by point, the authors explain the reasons behind this integration. As the table shows, specific events in the oil industry's history touched off the movements toward integration.

After the Standard Oil breakup in 1911, the most important business factor was the rapidly expanding supply of crude production. New oil fields—in the midcontinent, California, Texas—were blowing in from time to time. Producers, such as Gulf Oil Corp., found themselves forced to provide outlets for their crude.

In those days, there were no

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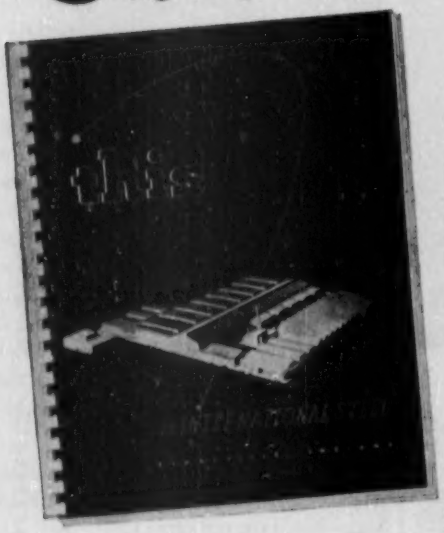

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conservation laws to limit and prorate production. So if Gulf, as an example, made a strike, other oil seekers could move in next door and drain off the supply under Gulf's well—unless Gulf kept pumping it out. The upshot: Gulf became a pipeline and refining company as well as a producer of crude oil. Thus, it could carry off and put to salable use the oil it discovered.

• **Profit Motive**—Throughout the book, the authors keep insisting that few integration moves were made simply to grab more profits. That consideration was usually secondary, sometimes not even that. In Gulf's case, the company had to protect itself as a producer by becoming a refiner.

Naturally, profits weren't overlooked. In the early days of oil output, crude prices fluctuated wildly as supplies first grew short and then became excessive as new discoveries were made. By integrating, the producing companies could level out their profit margins.

• **The Auto Age**—Up to around 1915, however, you could be a refiner, sell your kerosene (then the chief product) to a marketing outlet—corner grocery, livery stable, or what have you—and make a handsome showing.

Then came the auto boom. Car registrations soared, quadrupling between 1915 and 1920. Oddly enough, oil competition kept pace. Plenty of oil was being produced, but refiners found that their new major product—gasoline—couldn't be marketed like kerosene. They weren't able to depend on independent marketers because service was often poor, methods were unbusinesslike—and competition was rough.

In its annual report for 1929, the Atlantic Refining Co. told stockholders why it was necessary to join the movement toward full control of marketing outlets through direct purchase. The report said it was because of intense competition while oil was in oversupply: "As a matter of protection, rather than desire, your company has been forced to participate in this general movement."

• **The Gas Station**—The auto boom gave birth to the service station. Producers who had become refiners and refiners who had been selling to wholesale distributors now became service station operators. This condition lasted until the 1930s, when the Iowa plan for taxing each unit of any chain spread so far that ownership of any large number of service stations was impractical. Oil companies then leased service stations to independent dealers, with a franchise-type arrangement like the auto industry uses to protect itself.

Here again the authors contend that self-protection—rather than unvarnished aggrandizement—was the major reason for vertical integration.

• **Depression Trend**—Came 1926 and the auto boom leveled off, dropping

Napoleon did it this way...

Stress in bridges under moving loads concerned Napoleon. To prevent destructive vibration he ordered his troops to break step while crossing them.

Highway Engineers do it this way...

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toward the deep trough of the Big Depression. This accentuated the integration trend. Large supplies of oil and the intense competition for markets required producers and refiners to move deeper into marketing. Lower margins forced refiners to integrate backward into pipelines and production as a means of cutting operating costs.

• **Prorating the Yield**—The next turning point for the industry came in 1935, when oil-producing states widely adopted proration regulations over the oil take. By creating an artificial scarcity of crude, (1) prorating stopped a lot of producers from integrating forward into refining, and (2) forced refiners—among them Atlantic Refining Co.—to dig their own crude wells.

Producers realized that production controls (Atlantic called them a cartel system) could be used to maintain stable prices as well as to conserve dwindling supplies, so they were relieved from pressures that might force them into refining.

As it has worked out, profit margins on crude have taken only one short dip since 1935—that was in 1938. Otherwise, they have been steady or upward. Hence, relatively few crude producers these days take on the added management job of refining or marketing—especially in view of the fact that (1) their raw material end of the business is much more profitable, and (2) refining takes heavy investment.

• **Rough on Refiners**—Prorating worked the other way for refiners. Those who had failed to integrate into production now found they would have to protect themselves by making certain of their own sources of supply. If they didn't, management decided, they would be squeezed between stable crude prices and fluctuating refined-product prices.

High taxes during and after World War II brought just about the last of the nonproducing refiners into the oil fields. They needed supplies—and tax deductions made exploration and production attractive as an investment.

• **Unique Nature**—During all this period of integration from 1911 to the present, there naturally have been countertrends. The development hasn't been perfectly straight, or even all in one direction. One thing is positive: Integration, however it has occurred, was possible chiefly because of the nature of the business.

Essentially, the petroleum industry deals with one raw material; it sells to one major market and to well-defined subsidiary markets through a distribution system that handles only a limited number of other products; style is no factor in end products; the investment required to compete effectively is so steep that fly-by-night operators—except at the producing level—can't very well disrupt industry patterns.

Which man is writing a letter?

All three men seem to be telephoning . . .

But the man on the left is doing much more than that. He is writing a letter aloud . . . *dictating* it to the phone-like instrument of the new Dictaphone network dictation system: TELECORD.

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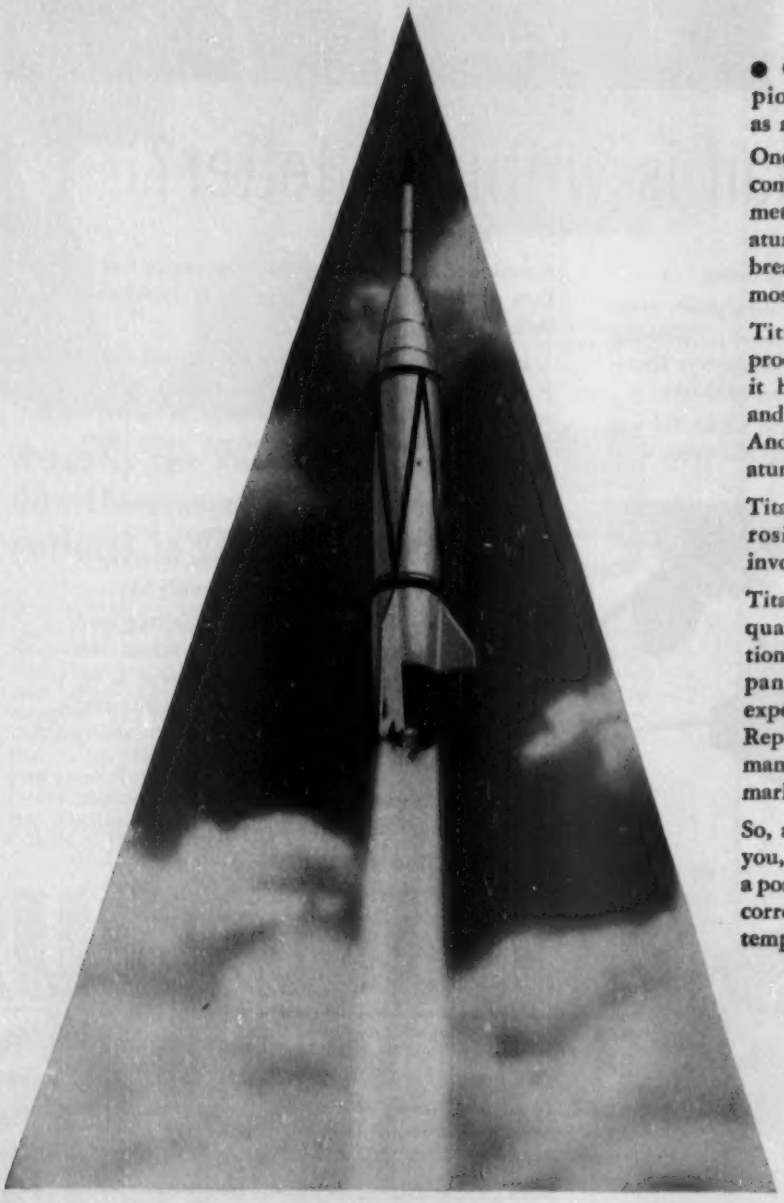
MISSILES HELPING TO BREAK A NEW INDUSTRIAL BOTTLENECK



● Guided missiles and rockets are pioneering civilian progress as well as military.

One of the bottlenecks facing many a commercial idea is lack of lightweight metals that can withstand high temperatures. The outstanding candidate for breaking this bottleneck, the metal uppermost in the nation's mind, is titanium.

Titanium is one of the metals being produced for missiles and rockets because it has about half the weight of steel and twice the strength of aluminum. And it can hold its strength at temperatures possibly up to 1000 F.

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Titanium is not yet available in sufficient quantity for many industrial applications. But Repubic Steel and other companies are doing research which is expected to improve this condition. Republic Steel both melts and rolls the many types of titanium metal being marketed by Republic.

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Crooks already know the tricks. Honest men have to watch out for . . .

The Statistics under the Rug

Darrell Huff's book, How to Lie with Statistics, advises the layman to look at them with a jaundiced eye. One missing figure can distort the whole picture.

"This book," says Darrell Huff, author of How to Lie with Statistics, "is a sort of primer in ways to use statistics to deceive." Here, it would seem, is a "manual for swindlers" that is calculated to school statisticians in the art of giving a slightly fraudulent statistic a larcenous twist. But, Huff hurriedly points out, this is not the book's purpose at all. "The crooks already know these tricks; honest men must learn them in self-defense." The book, illustrated by Irving Geis, is published by W. W. Norton & Co. ($2.95).

Huff was formerly associate editor of Look magazine and managing editor of Better Homes and Gardens. In his book, he debunks many of the frauds and much of the fetishism that inhabit the world of statistics. At a time when the statistic is regarded as sacrosanct by Hollywood, Madison Avenue, and much of business and labor, How to Lie with Statistics is extremely enlightening.

• **The Built-In Bias**—One of Huff's pet peeves is what he calls "the sample with the built-in bias." "The average Yaleman, class of '24," writes Huff, citing Time magazine, "makes $25,111 a year."

On the surface, this fact is enough to make almost any father ship his boy off to Yale. That is, until Huff starts dissecting it. It is doubtful, says Huff, that anyone will know his income so precisely, especially if it includes money other than straight salary. He then points out that the average is figured from what these men said they earned—". . . even if they had the honor system in New Haven in '24, we cannot be sure that it works so well after a quarter of a century."

Biggest hoodoo in the average is the sampling technique, says Huff. To be of any value, a sample has to be broad enough in relation to what the statistician calls the "universe," or total number of units from which the sample is picked. What's wrong with the Yale sample?

First, it includes only those men whose addresses are known, and this group is more likely to be well-heeled than those graduates who have dropped out of sight. Then, Huff asks, how many chucked the questionnaire into the wastebasket? Those who aren't doing so well might be loath to say so.

• **The Well-Chosen Average**—If there isn't much left of the class of '24's average income when Huff finishes, there is even less left of "the well-chosen average."

Huff cites the case of a real estate agent who plays on a prospect's snobbishness by telling him the average income in a particular neighborhood is $15,000. All goes well until the same agent, now out to depress the tax rate

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or assessments, tells the new homeowner that the average neighborhood income is only $3,500.

This sets the fellow to wondering what sort of deal he has been conned into. The fact is, both figures are correct. The agent simply used a different kind of average each time.

The first was a mean, derived by dividing total neighborhood income by the number of families; a couple of really rich people can pull the average up.

The second figure was a median, which is the middle figure in the list of incomes—that is, in a neighborhood of 13 families, the figure that stands seventh in order of magnitude is the median.

"Both," says Huff, "are legitimate averages, legally arrived at." The manner in which they were used shows how you can get some sort of statistic to prove almost anything.

• **Junior May Be Normal**—According to Huff, many statistics have to be probed thoroughly before you can understand how significant they are. As an example, Huff tackles the studies of normal infant behavior made by Yale's Dr. Arnold Gesell.

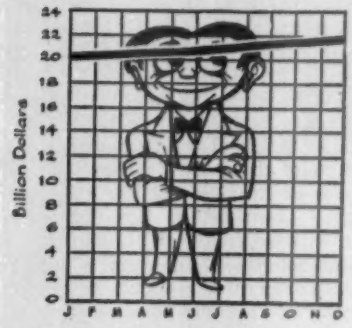
The Sunday newspaper supplements boil these findings down to a popular version of Gesell's patterns of normal child characteristics at various ages. The parent reads this, peers at his own child (the little beggar isn't sitting up yet, and he's already past the "normal" age), and concludes he has a retarded offspring. This may send worried parents scurrying to the pediatrician, but it is largely nonsense, says Huff. For one thing, normal should not be taken to mean desirable. The figures would mean more if Gesell's range of normal behavior were used instead of a precise single figure.

MISSING FIGURE in boiled-down chart could raise doubts about junior's I. Q.

• **No Line of Value**—In the same vein, Huff advises caution and mistrust whenever you encounter a graph or chart

with figures that are left unexplained.

"The Gee-Whiz Graph" starts Huff on another joust against a common technique for inserting a desired bias. This involves use of the truncated graph, with which you can make something look better or worse than it really is by lopping off the bottom (or middle) of the graph, thus making more impressive the range within which the curve moves. Or you can elongate the ordinate (vertical axis) by breaking the numbers into smaller units.



ORIGINAL chart can be turned into a...

GEE-WHIZ picture, distorting the facts.

A great favorite, especially since the Depression, has been the pictograph, or three-dimensional picture chart. Huff points out how easy it is to distort a simple, one-dimensional figure twice as big as another into one eight times as big, by giving it a 3-D twist. While the deceitful statistic is still only twice as high, it has become twice as broad and twice as deep.

Doctors and independent research laboratories, Huff says, are great favorites with purveyors of the phony statistic—particularly those who specialize in "the semi-attached figure." A juice extractor was advertised as squeezing "26% more juice," after tests by an independent laboratory. But, Huff goes on, the 26% turned out to be just that much more juice than the old-type hand reamer could produce.

• **Language Guide**—"Statisticulation" is a Huff-coined word, and is likely to become part of the statistical trade jargon. He uses it to sum up all the practices that involve "misinforming the people by the use of statistical material." Statistics become less mystifying, he concludes, when "honest men" learn to "talk back to a statistic." How to Lie with Statistics may give the layman a working vocabulary.

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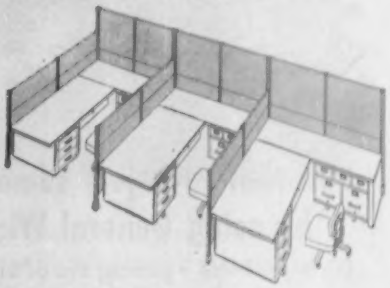

- Clean, straight-line arrangement speeds work, reduces traffic.
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Chips on Food

Atlas Powder decided to expand production of food chemicals. It's betting on continued growth there.

Atlas Powder Co. of Wilmington, Del., suffered a setback last spring when the U.S. Supreme Court refused to review a lower court's ban on Myrj, a food emulsifier made by Atlas (BW—Apr.11'53,p36).

With the popularity of Myrj for baked goods, Atlas had built itself in six or seven years to a position where it could claim to be the principal supplier of emulsifiers to the food industry. The Supreme Court action left it with a choice of (1) quitting the food emulsifier business or (2) adopting the competitive product—the glyceride types of emulsifier made by the soap and shortening companies and approved by the Food & Drug Administration.

This week Atlas made its choice. The company announced a new Food Industry Division, and two new plants to produce emulsifiers of the glyceride type, as well as a new type made from a sugar derivative. The new plants will be in Memphis, Tenn., and Brantford, Ont.

• **Strategy**—In addition to the new division and the reported capacity in food chemicals, the direction of the company's strategy is important. Atlas is moving toward chemurgy—chemicals from farm products—rather than toward petrochemicals, the aim of most chemical companies these days.

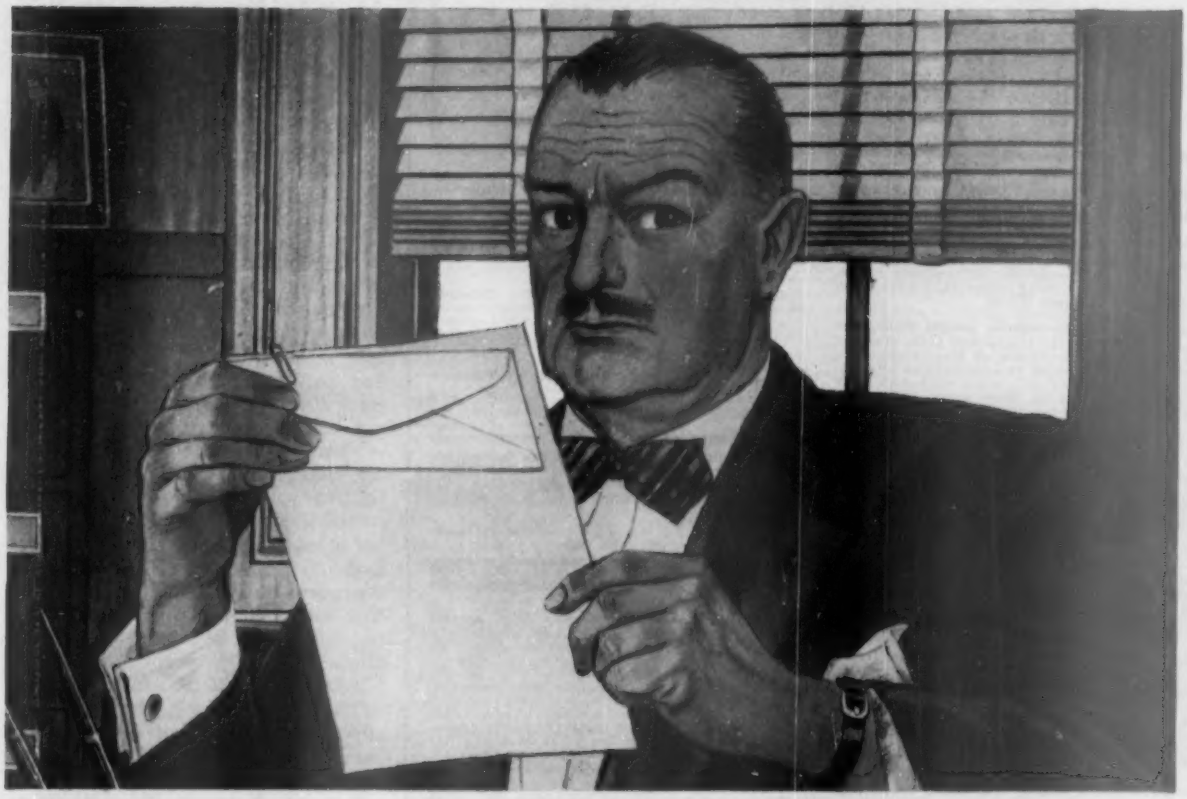
"The nation's population is growing at a proved rate, and food is assured of an expanding market," says William W. Hays, director of the Food Industry Division. "We believe the food industry is going to depend more and more on technology. Our new division is tailored to research, to providing the link between chemistry and food."

Atlas is aware that it is going into a highly competitive field, and it will stress its technological advantages, Hays adds. The monoglycerides and diglycerides are now made chiefly by shortening manufacturers, by soap companies for their own use, and by a few small specialty chemical houses.

• **New Steps**—In emphasizing research, Atlas has organized a separate group at its central research laboratories, with specialized equipment to aid work on food products.

Meanwhile, production of the glyceride-type emulsifiers is already under way at the company's Atlas Point (Del.)

Are you tired of messy typing?



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• **Process**—The process at all three plants is the same. Raw materials are fats and oils such as cottonseed oil, soybean oil, and animal fats. These are made to react with water-loving substances such as sorbitol, a derivative of sugar, or glycerin, a byproduct of soap-making. The result is an emulsifier that has an affinity for both fats and water.

The food industry uses emulsifiers in shortening, margarine, candy, ice cream, and baked goods. The emulsifier helps to distribute the ingredients homogeneously throughout the product, breaking them down into very fine particles. The industry claims emulsifiers improve the taste of foods and keep them fresh longer.

• **Materials Source**—Atlas is ready to use either sorbitol or glycerin in the reaction with fats and oils. Sorbitol comes from sugar, a commodity that has a low, stable price; glycerin prices fluctuate broadly, but Atlas won't be dependent on the material. It will be the sole producer of sorbitol-based emulsifiers, but it anticipates no such difficulty of FDA acceptance as Myrj, a petroleum-based substance, ran into.

The new Memphis plant is especially close to sources of supply. It is being built on land acquired from and next-door to the HumKo Co., a subsidiary of National Dairy Products Corp. and one of the country's leading producers of fats and oils.

School for Safecracking

Sargent & Greenleaf, Rochester (N. Y.) lockmaker, conducts a school for safecracking. Graduates aren't headed for yeggery, though; their job will be to help police open safes locked by accident. Here Wayne Heinkel, one of a class of 15, does classwork on a combination.

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From Cold War to Cold Peace

Little in the way of concrete agreement has emerged from the Big Four foreign ministers' conference in Berlin. But the meetings were important, for they represented the opening round of the cold peace, rather than another exchange in the cold war (BW—Feb.13'54,p27). Most of the credit for making the distinction goes to Secretary of State John Foster Dulles. In words and action, he expressed the West's new unity.

But Dulles did more. He outlined a Western policy that, in the long run, may bring clear and positive results.

The secretary's performance was, in many respects, the real news of the conference. It was his obvious belief that the time for concluding a definitive treaty with the Moscow-Peking axis has not yet arrived. On the one hand, Western strength is still not at its peak and, on the other, the weaknesses of the Communists have not yet developed to a point that could force a real retreat. But though there is no short cut to peace, Dulles started paving the way.

In adopting this estimate of the situation, Dulles combined firmness in principles with flexibility in tactics. For instance, he expressed his deep faith in the moral strength of Western civilization at the same time that he used the brilliant strategy of allowing France, the weakest of the Western partnership, to play the role of spokesman in opposing Soviet designs.

The display of free world unity, in the face of repeated Soviet efforts to split the partnership, was Mr. Dulles' most solid achievement. He proved that, despite the European fear of McCarthyism and our own squabbles over foreign policy, the U. S. is capable of asserting democratic leadership in the free world. He made plain that though we are the strongest of the partners, chiefly because of our economic strength, it is a case of being first among equals, with each member of the partnership having the same stake in maintaining freedom.

Dulles had other real achievements that seem destined to pay off in the future. Speaking from the Soviet embassy itself, that symbol of Communist control over central Europe, he directed a message at the oppressed peoples in the satellite nations. Without offering false promises, he made it clear that the West would not sell them short.

In Berlin, Dulles demonstrated he could beat the Russians at their own game. By accepting the Soviet agenda, he prevented the usual drawn-out and meaningless debate over procedural matters. And by refusing to bargain away German unity for an Asian settlement, he made sure that Molotov could not bring back any cheap gifts to Peking.

Molotov's main proposal was for a European security pact, which would exclude the U. S. But it did not break the solid links that Dulles forged among the Big Three. And it did not alter Anglo-American determination to rearm Germany. The fact is that as a result of the Berlin meeting, chances for ratification of the European Defense Community pact may have been improved.

Thus, the Secretary of State, who has been the target of bitter criticism among our allies, has shown impressive ability in the art of diplomacy. Berlin was only a skirmish, not total victory. But Dulles has given the West the political and psychological edge. It is a job well done.

Was Marx Right?

Like the boy who cried "Wolf" too often, Soviet economists have been predicting an American depression for so long that no one in the Western world bothers to listen. Now, however, a leading Marxist economist, Eugene Varga, has changed his tune. This is a development worth noting.

Only a few months ago, Varga predicted that the United States was heading toward a major crisis of overproduction. Since then, he has had some second thoughts. His latest forecast, published in Pravda, is considerably more optimistic about the U. S. outlook. In typical Marxist fashion, Varga still holds that there is "an ever-deepening general crisis of capitalism," but he no longer is sure that the crisis will hit this year. In fact, he concludes that it may well be averted.

We welcome Varga's latest forecast—and not merely because it veers toward our own views. Varga has strayed from the party line in the past. That is why he is one of the few Marxist economists who has retained a measure of respect outside Russia. Just after the war, for instance, he was severely criticized by other Communist economists for his view that, though the U. S. could not avoid a decline, no major postwar crisis was imminent.

Later, Varga made a purely formal recantation and lost his official post. But no other punitive measures were taken against him. In fact, he seemed indispensable to the Communist leaders. It is believed that he was reinstated as the Kremlin's chief adviser on international economics even before Stalin's death.

Varga's prominent position in the Soviet hierarchy gives his changed views real significance. His analysis explains the current Soviet drive to purchase consumer goods in Western Europe. If the Russians believed their own propaganda, they could have waited for Europe to feel the recession and then reaped the harvest on their own terms. Varga's belief that the West is not in for a serious decline may have convinced the Kremlin that there was no point in waiting.

Whatever the Russians think or do, we must not be complacent. For now that Varga has expressed his new point of view, optimism among economists is virtually unanimous. This is a signal for cheer, but it is also a signal for caution.

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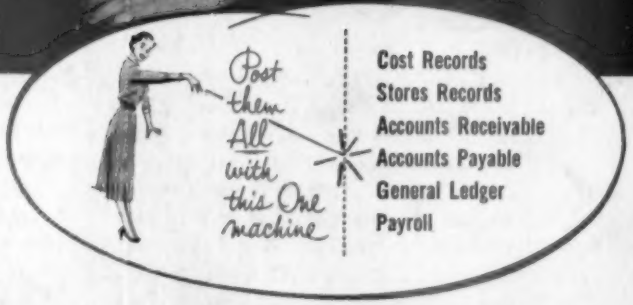

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